

Thursday, February 24, 1983



Chris Gare

GARE... Made a surprise exit.

Bureaux battle on against the micro

by John Kavanagh
COMPUTER bureaux have been "savage" by users' moves to in-house microcomputers — and other services firms could be at risk if sales fall further in the recession, because short-term debts far outweigh assets. But as the services industry walks this survival tightrope it is showing "remarkable resilience" to the recession.

These are the conclusions of a

study of 60 companies results be-

tween 1978 and the end of 1981 by

the UK research firm ICC Busi-

ness Ratios.⁴ The study report

says that despite the dangers the

services industry has "tremendous

potential".

Three of the 60 companies were

making losses in 1978. By the end

of 1981 the number had grown to

10 — all of them bureaux. "Com-

panies heavily committed to

processing services will definitely

be feeling the squeeze due to the

expansion of in-house processing

with micros," says the report.

Sales growth, while still healthy,

is falling. Sales rose by an average of 29.3% in the first half of the

three-year period and by only

18.4% in the second.

ICC says the median sales

growth just about kept up with

inflation, which means many firms

did not grow at all. Sales growth is

likely to continue falling, the com-

pany says.

Profit growth, however, held up

well — but ICC says this will not

continue. Pre-tax profits rose by

an average of 8.6% in the first 18

months of the study period and by

10.3% in the second. Meanwhile

profit margins fell from 6.8% in

1978 to 5.3% in 1981.

* Computer Services Industry Sector Analysis, E105, ICC Business Ratios, 25-42 Baileys Street, London ECY 8QR.

LINE NOISE

THE gremmills seem to have struck at IBM's new operating regime MVS/XA. Scheduled for first quarter 1983 and widely tipped for January, it now seems that it could be mid-March before MVS/XA is widely available. Just why this should be cannot be gauged — certainly not through lack of performance though. Early reports from the myriad test sites around the world indicate a high level of user satisfaction.

WATCH out for a number of small but successful software houses, which are being stretched to provide a worldwide service to a booming market via a relatively tiny payroll, deciding to raise the necessary cash by going public. We have reason to believe that high up on this list could be the CIS Cobol and Level II Cobol people Micro Focus.

THE saga of Commodore's UK production plant continues. Negotiations between Commodore and the Department of Industry over grants available to Commodore drag on, and it now looks as if it will be another fortnight at least before anything is settled. Commodore wants to start assembling units here by July, and has fixed on one of two Enterprise Zones for the site. Ex-steel town Corby is currently touted as the favoured location.

KEEP your eye out for top American businessman's magazine *Forbes* when it hits the stands on March 1. For it reveals that in August 1981, IBM signed an agreement with the FBI to train and provide cover for two agents and to train others. The agreement was signed only a month before Hitachi's leading US consultant, Maxwell Paley, accepted a substantial payment from IBM for information which led to Hitachi going to court, and pleading guilty, for stealing trade secrets. This tale is bound to cause some stir as Paley was paid over \$2 million by Hitachi over the years, it is alleged.

IT Cuts Costs

Olivetti woos US and jilts France

by Jeek Gee

OLIVETTI chief Carlo de Benedetti is looking for an American partner, and the French government looks likely to lose its access to the Italian giant's know-how in office automation, as well as its 40% stake in the company.

Olivetti's efforts to loosen its French ties come at a moment when the Italian government is expressing interest in a stake in the Thomson-Brandt merger with Grundig whose outcome is still uncertain.

De Benedetti revealed his interest in an American alliance for Olivetti, as moves began to dissolve Olivetti's partnership with the French state-owned company, Saint Gobain.

The French government has told Saint Gobain, which diversified into electronics under orders from former President Valery Giscard d'Estaing, to divest itself of its high technology activities.

Saint Gobain, traditionally a glass maker and obedient to its state shareholder, has therefore sold its 20% stake in computer maker Cii-Honeywell Bull to Machine-Bull, the holding company.

Cii-Alcatel, a subsidiary of another state-owned electronics major Compagnie Generale d'Electricite, has been instructed to negotiate for the purchase of Saint Gobain's 35% stake in Olivetti.

This reflects his view that if Cii-Alcatel steps into Saint Gobain's shoes, its stake in Olivetti must be much less than 40%.

De Benedetti recently gave a hint of his much greater enthusiasm for an American partnership when he told *Fortune*: "The problem is to find a shareholder who will help us continue to expand."

Georges Pebereau, Compagnie



BENEDETTI... Priority to US.

Hart aims to fill gap in micro shop services

by Robert Parry

ONE-STOP micro shopping is the carrot dangled by newcomer to the microcomputer market, Hart Computers. British hardware, software including integrated accounting packages from Grafton, are combined with user training in one three-pronged package for small to medium businesses.

"A lot of people are making money by selling systems that cannot work," says Hart's managing director Brian Courtney. "They get away with it for a while, but it's not us — we don't want to be one of them."

Hart's aim is to come somewhere between Tottenham Court Road micro dealers and the large multinational manufacturers in the level of training and after sales support offered, Courtney says.

Training, like the basic business software, is included in the system price. And hardware and software support will come through Hart itself, with each office having a complement of engineers, trainers and software people.

For the moment the only Hart office is in Ealing, West London, but Courtney intends to head East in a few months time. "We're looking for somewhere around Liverpool Street Station for our City Office, then will replicate centres throughout the country as fast as practicable," he adds.

He sees no more than eight or 10 centres being set up in the next two years.

Fire control

THE UK's second largest fire brigade, Strathclyde, is to take a £1 million computer-based command and control system from M. Gemini. The system is based on three Data General Eclipse minicomputers.

BT order

TWO million pounds worth of Newbury Data VDUs and main printers are on their way to British Telecom. Some of the terminals will be used for BT's packet switched stream service, but the majority will aid the development of new applications throughout British Telecom.

Sweet deal

CAP is aiding the production of 200,000 tonnes of sugar a year in a turnkey deal with British Sugar. A supervisory control system worth £430,000 is to be installed at the BS Bury St Edmunds automated warehouse part of a complex which produces 40% of British Sugar's annual production.

Vital modems

MICOM-BORER Micro 4000 modems are to form an integral part of Geac Computer's systems aimed at library applications. The first shipment of 4,800 baud modems is valued at over £200,000, and further orders are expected.

Geest in hospital

THE new £4 million Fitzwilliam Hospital at Peterborough is to be Geest Computer Services to handle its staff payroll system. Geest already handles over 120 payroll, sales ledger and invoicing applications for firms in the Peterborough area, and claims that its service costs less than half the price of manual systems.

On prescription

EACH month, 12.5 million prescriptions are issued, and Radission Computers has won a £1.2 million contract to supply hardware and software to calculate payments to 4,000 pharmacists and to provide prescription analysis to over 900 GPs within the NHS.

FAIRCLOUGH... Long-serving

IBM's UK chairman, Eddie Miller, has moved from director of the Greenock factory in Scotland to manufacturing director, reporting to former development director John Fairclough, who has also moved from managing director of IBM United Kingdom Laboratories to chairman of the research subsidiary.

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John Fairclough, a long-serving IBM man, joined the Hursley laboratory in Hampshire in 1958 and after 10 years became assistant general manager of IBM United Kingdom. In 1970, he went to the US and had responsibility for developing IBM's manufacturing at its new plant in New York.

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IT is making it possible for firms to leave the cities.

Small machines mean more space for people

by John Kavanagh
INFORMATION technology is paving the way for companies to leave expensive city centres and giving staff more space to work in. These unbalanced benefits of technological progress are highlighted by a report from the College of Estate Management, which contradicts forecasts of falling demand for office space.

"The impact of information technology is on office location, not size," said research fellow Craig Plumb, who prepared the report. "As equipment gets smaller and fewer people are employed companies are not necessarily cutting back on space but providing more space per person. This coincides with an increase in staff expectations."

Demand will not fall over the next five or 10 years, but the increase in demand will start to level off, says the report.

Privacy law delays the fight against cancer

by Jack Gee

PROGRESS in the fight against cancer by French research teams is threatened with a serious setback by the application of the five-year-old law which safeguards citizens' rights against data processing misuse.

Doctors say their efforts to coordinate information about patients' medical histories is being thwarted by both the Penal Code and the National Commission for Information Technology and Civil Liberties.

The medical profession claims that legislation designed to protect civic rights prevents the creation of a national database listing all cases of cancer in France.

This database is an essential tool for identifying phenomena which link sufferers according to age, place of residence, medical history and other characteristics. Without it progress in the battle against cancer cannot be made, according to French doctors.

Minister of Health Jack Ralite says the problem is so urgent that he is asking the country's top law reviewing body, the Council of State, to rule whether doctors would be breaking the law if they establish a database register of cancer sufferers.

The Commission ruled that the Technology and Civil Liberties has already succeeded in getting one official medical database's records scrapped.

'IT is about money, not technical excellence'

by Donald Kennett

ETHERNET and IBM's token passing bus network will be running neck-and-neck in 1986 with 30% each of a \$390 million market, according to networking company 3Com's international marketing manager David Coulson.

Speaking at a seminar on local area networking with the Unix operating system held by Keen Computers, Coulson said that Ethernet had two years to establish itself while IBM developed its system.

Ethernet and local area networks in general so far have been more talked about than actually used. Another speaker at the seminar, Dr Ken Head of the Joint Network Team for UK university and research council systems, suggested that Xerox, which developed Ethernet, in many ways misunderstood the standard-making machinery. "They thought they had a specification available that could be

slapped on the table and adopted. But the rest of the world said let's work on it for a couple of years at the end of this year.

There was now a universal recognition, including by IBM, that standards were necessary for the interconnection of systems from different suppliers - or even different systems from the same supplier.

There was a danger that any small difference was enough to prevent compatibility between systems, he said. It was interesting that semiconductor manufacturers were producing "soft-centred" networking chips, that could be configured to a variety of specifications. But this was bad news as although they would allow mistakes to be rectified, they would also allow different incompatible implementations.

"Software implementation is slow," he said, "but standards are even slower. The International Standards Organisation works to a 25-year time cycle."

Standards for the Session and Presentation layers could realistically be available in draft form by the end of this year.

market is more important than driving it up at this stage.

Coulson said that last year's million local area network market was dominated by non-Ethernet systems such as Corvus, Nestar's low-cost range, microcomputer users and PABXs. Ethernet's share was

as its price fell, he said.

3Com specialises in Ethernet.

Having been set up in 1979 as a consultancy, it moved quickly to manufacturing, first of transceivers for interfacing terminals and processors to the network, then with controller boards to plug into the main processor and finally with working software to run in the processor, provided that they are under Unix.

Most of 3Com's range will be developed in-house, according to Taylor. This marks a shift of emphasis for the firm, which has previously divided its efforts equally between development and

marketing work.

Several products developed in-house are expected to be on the market by the end of the year.

Taylor is awaiting the report of

UK Ministry of Defence has tested

3Com products and there have been unofficial means of having

programs investigated, but the

NCC's is the first scheme to be

negotiated with US authorities and

to stand up a par with their own.

The FSTC has also recently begun

developing Fortran.

It is hoped to open French and

German centres to carry on the

same service during 1983, in

the UK.

The work is to be done by the

SOFTWARE FILE

PPL pushes forward with assault on micro market

PACKAGE Programs has taken on board micro expert Vince Bennett from System 200 to back its assault on the bottom end of the market. He will be the company's key man in its adaptation of its range of business management programs for small computers.

PPL believes the experience Bennett gained at System 200 - and before that with Datasolve, GSI and Univac - will strengthen the team it has lined up to make the most of the burgeoning micro software field.

Managing director Roy Taylor

says PPL is pushing ahead with investigations of the field, independent of the giant American corporation Software International for which PPL is an agent, although Software International is also moving in that direction.

"The micro version should be available for the IBM PC in the summer and will be almost identical to Taylor. This marks a shift of emphasis for the firm, which has previously divided its efforts equally between development and

marketing work.

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TAYLOR... "We intend to spread ourselves."

NCC Cobol tests may help exports

A COBOL validation service introduced by the National Computing Centre carries the US government's stamp of approval and could help boost British software exports.

NCC's standardisation office, which hopes to assess up to a dozen Cobol products in the first year of its operation. A new ANSI standard Cobol if approved in that time could open the floodgates to a "whole raft of new Cobols", according to the NCC's Tim Wells.

The US government has run Cobol validations for a number of years, but recently has stopped sending representatives abroad to look into software matters.

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PHILLIPS... Rooms for sale.

Impell Anvil ready for DG 32-bit minis

AVIL/4000, a successful mechanical engineering software package, has been made available on Data General's 32-bit minis. Anvil was written by Pat Hanratty of Manufacturing and Consulting Services (MCS) and is marketed in the UK by Impell. The CAD/CAM system has already been adopted in the US by Westinghouse in its Data General hardware. It was demonstrated by Impell for the first time in Britain at the CAD North exhibition in Manchester.

Professional WP

DEC's Professional micro has its first word processing system, according to Tony Barnard, managing director of Ace Microsystems. Ace has developed the Lex-11 system for the micro, as well as for DEC's PDP-11 and Vax minis. DEC says it is working on its own set of tools for the Professional, which includes a word processing system and will be announced shortly. Barnard was the inventor of the National Computing Centre's award-winning Filetab language.

Ada for Concept

US MINI manufacturer Gould SEL has introduced Ada and Pascal compilers to run under its Unix Operating system on the Concept 32 machines. Both Ada and Pascal compilers generate machine code via the 'C' language compiler.

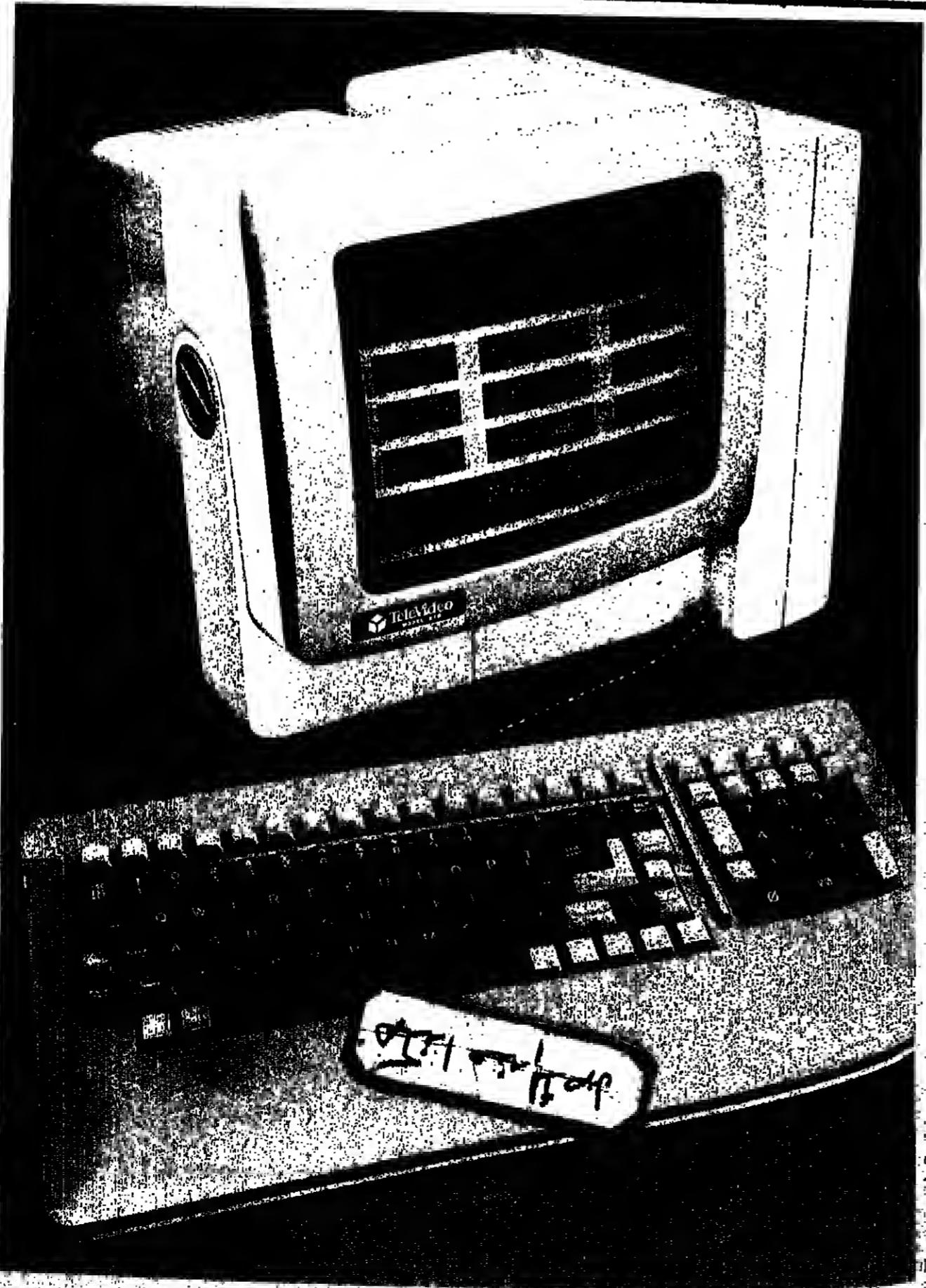
Omicron order

LONDON: software house Omicron has won a £35,000 contract to supply the accountancy giant Price Waterhouse. Omicron will put its financial packages on to 150 systems at 50 Price Waterhouse sites. Managing director Vince Wells, formerly of RTZ Computer Services, said his firm was aiming to boost turnover from £452,000 to £1.75 million in 1983.

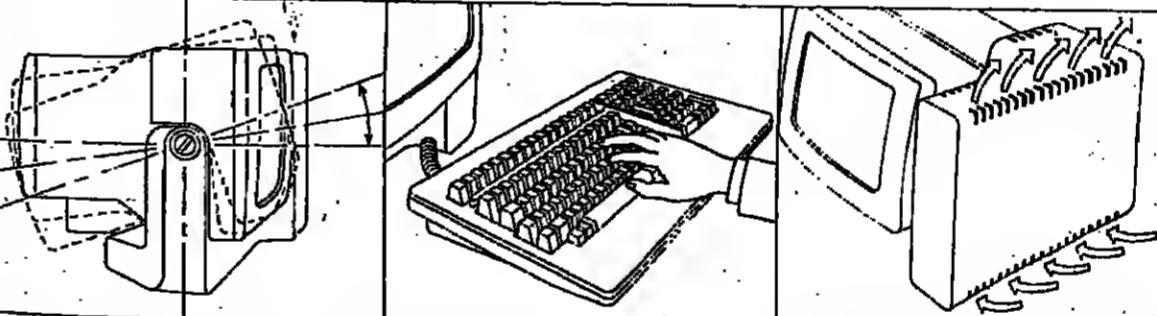
Mini CIS Cobol

PROGRAMS written in Micro Focus's CIS Cobol can now be run on Ferranti Computer Systems' Argus 9000 range of minis. The Argus CIS Cobol extension runs under the OSCS multi-access operating system. Ferranti says Argus users can now take advantage of many Cobol packages.

Software File is compiled by George Black



The new 970 from TeleVideo. Nothing else looks like it. Nothing else performs like it.



Productive office work depends on people and their equipment working efficiently together.

That's why we have engineered the exciting, new TeleVideo 970 to perform better than any other terminal.

For instance, only our "natural balance" tilting mechanism lets you easily adjust the screen at a touch, so you avoid neck-craining, straining and glare.

Our unique keyboard is designed to avoid user fatigue. We've created a natural palmrest, sculpted keys and the best ten-key accounting pad in the industry. Our non-volatile function keys save time and energy.

Like every feature of the new 970, the screen is designed for ease of use. Our non-glare 14-inch green screen is restful on the eyes, and its 132 column display can format more information. All in highly legible double-high, double-wide characters.

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Rodime first with 3½in Winchester

BRITISH disc maker Rodime has set the pace for the next generation of Winchester drives. It has launched a 3½-inch drive carrying five or 10 Mbytes, based on the design of its current range of 5½-inch units, and hopes to pull the rest of the Winchester building community along with the standards it lays down through its early announcement.

"It is the first, and the definitive 3½-inch Winchester," says Rodime's marketing director Malcolm Dudson, "and we believe it is going to set all the standards - the disc diameter standard and the interface standard - for a totally new generation of rotating disc memories."

The move towards smaller disc drives has been most noticeable with floppies, where there is a multiplicity of manufacturers with various dimensions of disc vying for the microfloppy market.

The basic unit is the same width

as these microfloppies, 4in, and half the height of a standard 5½-inch drive. By overpacking the unit it can be fitted into the space for a half height 5½-inch drive.

Many companies are now

nowing the full height 5½-inch way, and Rodime has considered this market in detail, says director of engineering Norman White.

"It is some sink in that if we were clever we could produce a sub 5½-inch drive whose dimensions were such that it could also be packaged as a half height 5½-inch Winchester - and so kill two birds with one stone," he says.

The length of the drive was set at the width of a normal 5½-inch drive, allowing two units to be packed side-by-side in the space of a single half height 5½-inch unit.

Once these physical dimensions had been fixed, giving Rodime its best chance of filling the hole in the market - and microcomputer front panels - the rest of the new drive came naturally, adds White.



DUDSON ... "It is the first and the definitive 3½-inch Winchester."

BP £128,000 grant for research

SCIENTISTS at two Scottish universities, backed by money from oil giant BP, are setting out to seal a march on the Japanese. BP's Venture Research Unit has come up with a £128,000 grant, spread over three years, that will allow researchers at the Universities of Dundee and Edinburgh in work towards cheap, fast reprogrammable memory chips based on amorphous silicon, rather than crystalline silicon used for the vast bulk of present semiconductor devices.

"It's still very much a laboratory project," says Peter Le Comber, of Dundee's physics department, "and we are still a few years from commercial development even if

the work comes off. We don't really know how it works, but it looks a good idea and a good device."

There is a lot of research interest in amorphous silicon devices, particularly in Japan, where they have already reached consumer products through solar cells. Le Comber reckons there are 30 to 100 laboratories working there with the material.

It is cheaper to process than crystalline silicon, and large area devices are feasible. The Scottish workers have already taken out patents on their memory circuit.

They have found that solid state structures can be built on thin

Dealers get together

IN A move to strengthen purchasing power and streamline the business of selling microcomputers, three Sirius dealers have banded together as the nucleus of a new micro dealer franchise chain.

Micro Nationwide, as the new enterprise is called, will be headed by Brighton-based Sirius dealer Cliff Jenkins who aims to cut down the time small dealers have to spend just running the business and looking for decent software to sell, before actually selling machines or supporting customers.

"It will give us benefits of greater buying power. We will buy stuff centrally and so get better

volume discounts, improve efficiency and spread responsibility for everyday running of the business," says Jenkins.

For the customer it will give more consistent software, evaluated centrally for all dealer franchises, and better maintenance facilities, he adds.

Jenkins hopes to spread the net to 20 to 25 dealers by the end of this year. They will be much the same, focusing on general business applications rather than particular vertical markets for now. Initially he is looking for established Sirius dealers.

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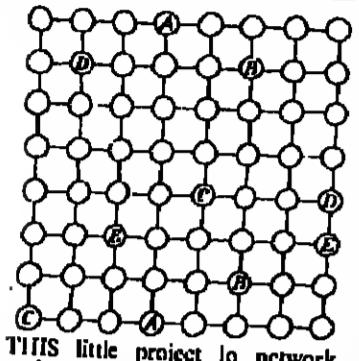
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Where to go for the best 'perks'

by John Riley
COMPUTER staff working in finance companies get the best perks, and those working in the public

PUZZLER



sector get the worst, suggests a report published last week.

Professional LIP staff at all levels in banking, insurance, building societies, and other financial institutions receive better life assurance cover, more assisted mortgages, and more non-contributory pension schemes than their counterparts in other professions.

Financial institutions offer the best life assurance cover, averaging three to four times the annual salary. This compares favourably with the average of two to three years' annual salary.

An average of about 60% of staff in each sector get free or assisted membership of a private health scheme. Financial institutions do better, and the public sector fares significantly worse.

While 98% of all the installations offered sponsored pension schemes, a high proportion of the financial institutions offered non-contributory pension schemes, while the most expensive schemes were in the public sector.

Progress in computers, hydrostatic motion and integration of aircraft data have led to the improvement. But until recently the



The view from the cockpit of a flight simulator still looks too much like a plasticine model.

Realistic images for the pilot

IT is clearly desirable that trainee airline pilots make their mistakes in a flight simulator rather than slop in a jumbo jet.

Simulators are also cheaper — they can be hired for less than a quarter the cost of an aircraft, and in recent years have advanced quickly to become almost like the real thing.

Progress in computers, hydrostatic motion and integration of aircraft data have led to the improvement. But until recently the

drawback was the poor quality of the simulated image seen through the cockpit window. Only night-time images, much easier to produce, were possible.

But now daylight images can be produced, imitating the runways, control towers and hangars, as well as the passage of the ground during mid-flight. But the visual systems are expensive, accounting for over £1 million of the £6 million cost of a commercial simulator.

Woolons says Sussex University aims to cut the price of the visual system by use of special process designed in its laboratories.

PEOPLE



LEVY and HAWORTH... Launching into micros.

MCS' micro offshoot

MANAGEMENT Control Systems (MCS) has launched a new company to market a range of personal microcomputers. Called Mancos Computer Services, the company is based at MCS' Manchester headquarters and will be run by MCS founders Dr Harold Levy and Dr Eric Haworth.

Company secretary is Lynda Atherton, who has been company assistant at MCS for the past three years. She will continue her responsibility for MCS group accounts.

MCS was founded 12 years ago to develop specialist software packages for DEC hardware. Present turnover is £4 million.

Haworth sees the new company as a "logical extension to business at a time when several large manufacturing suppliers are launching microcomputer products." Mancos will be recruiting "extensively," adding to the parent company's staff of 70.

■ Paul Coombe has joined Comart as senior sales executive, responsible for major government accounts. He was formerly a systems sales representative at Unichem.

■ Simon Clayton-Jones (below) has joined Encelot Systems to support sales of micro mainframe software. He was previously with Babcock Power, where he was responsible for computer communications and product evaluation.

■ Peter Boundy has been appointed European marketing support specialist at Mastor International. He was previously a senior systems engineer for IBM UK, serving the banking industry.

■ John Bryan has joined Gould Instruments as commercial products manager. He was formerly an applications engineer with the measurement systems group of Hewlett-Packard.

■ Ecxco Office Systems has named Alan Scott marketing manager, City of London. He has been with the company for two years, holding as a sales representative and going on to become major account sales manager.

■ The optical transceiver produces the same effect as the transistor by exploiting materials that like glass, transmit some of the light that falls on it, but bend or reflect strong light at a different angle from weak light.

Another property of light has to be utilised. Interference. Light can be considered to be a wave. Polarised light, such as a laser beam, has its waves aligned in one direction. When two beams of polarised light meet, they interfere, and if the troughs of the waves of one beam coincide with the peaks of another, they annihilate each other, or interfere destructively. The opposite, 'constructive interference', happens when the troughs and peaks coincide.

■ Digital switches rely on the logical AND or OR, which combine logical variables to produce one new variable. Logical variables can hold only two values — on or off.

The logical variable produced by AND is on if all the variables being combined are on, otherwise it is off. The variable produced by OR is on if any one or more of the variables being combined are on.

■ Transistors can be used to produce an AND by being linked so that a large output of current is only produced if all the inputs are large. In other words the large current is equivalent to the logical

■ ASEA has appointed Timothy Langhorn as business planner. He was previously an economist with the British Pump and Valve Manufacturers' Association.

■ MDS Computer Systems has appointed Mike Armitage as sales manager, special accounts. He joins the company from Computer Automation, where he was a sales manager.

■ Counting House Computer Systems has announced two new appointments in its marketing organisation. Paul Reach, who joined Counting House six months ago as a sales executive, has been appointed CAD/CAM analyst. Dave O'Hara, previously Northern sales executive at MDSI (UK), has joined the company as sales and marketing executive.

■ Marie Diggory (below) has been appointed sales executive, Southern Counties at Computer Systems and Products. She was previously assistant general manager of GenRad's advanced technology division.

■ John Whately has been promoted to UK product marketing manager for the Newbury Data range of VDUs, protocol converters and ULA workstations. He was formerly technical support manager.

■ Jim Beveridge has taken over as manager at Motorola's microprocessor marketing section. He was formerly the company's special functions manager. Rob Baxter has joined Motorola Semiconductors after six years at Texas Instruments where he was product marketing.

■ Robert Trick has been appointed marketing manager for Amplex products in Europe, Africa and the Middle East. He was formerly with the company's memory products division in the US.

■ To meet increasing demand for its automatic inspection products, Peerless Control Systems of Milton Keynes has appointed three senior staff members. Philip O'Toole has been appointed general manager. He was formerly with Scanray and BIX. Ian Randall joins the company as operations manager, and Niall Hicks joins the team of project engineers for the ART system.

■ Marion Wolstencroft has joined Computervision UK as financial and administration manager. She was formerly European financial controller of the European sales division of Zilog.

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The exhibition of technology developed in and for schools showed a wide range of inventiveness.

FACE THE FACTS!

There are two sides to any coin.

In this case, the front of the coin is about exploiting the new technology to achieve maximum efficiency and cut costs.

Data terminals communicating with host computers and data bases provide a better basis for decision making, rapidly and to numerous members of staff.

Word processing saves time and labour.

Personal computers enable it possible to perform important computations, calculations and simulations locally.

Solving such major applications part by part, you may end up with incompatibility. With a range of suppliers and of servicing agreements. Operator desks with two, perhaps three terminals.

That's the other side of the coin. Expensive and ineffective. Today, more than ever, there is a need for a second thought first.

THE ALFASKOP MULTIPURPOSE TERMINAL

COMMUNICATIONS. Compatible with IBM 3270 BSC, SNA/SDLC, Local and Remote, Univac, Digital, and other common host computers.

MULTI-HOST. Communication with several host computers from a single terminal. The operator selects from the keyboard the host computer to be connected.

PERSONAL COMPUTER. Program package for local personal computer facility. UCSD p-System™, Basic and Pascal compilers.

WORD PROCESSING. Alfordsoft program package for local word processing.

OFF-LINE EDITING. Alfordsoft program package for off-line editing of source code, information and documentation.

BATCH TRANSMISSION. Alfbatch, IBM 3780 emulation for batch transmission between the terminal and a computer.

One thing is perfectly clear. There won't be room for more than one terminal at the operator desk of the future. One terminal, with numerous functions, And ergonomically designed!

Alfaskop is basically a data terminal for communication with host computers. But loaded with another program it becomes a local work station. For example a word processor or a personal computer.

One terminal, with several functions.

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FOTHERGILL... Buying is left to school.

However, the third stage, getting the software and aids into the schools, is crucial for the overall success. There is no central assistance to the local authorities or to schools for this purpose, which will have to find the funds from ever-decreasing educational budgets.

As one teacher at the exhibition commented: "Lack of cash, often very minute amounts of cash, brings our plans to a halt in schools."

Richard Fothergill, the enthusiastic director of MEP, himself a former teacher, is all too aware of the problems. "Although many local education authorities buy bulk discounted purchases of MEP developed educational software, others do not, have a central purchasing policy, and buying is left entirely to the schools."

"On the whole schools have to find the money from their own resources. Some schools have a lot of money, but the poorer the area, the less money there is available, and that is sad."

There are three broad prongs to the MEP's work. About 50% of its grant goes to developing software packages, teaching aids and curricula. The MEP gives grants to projects which will produce materials which can be used nationwide.

These are based in schools, polytechnics and universities. Additional aid, worth some £150,000 per annum, has been

at the next stage through lack of funds.

The first stage was the subsidised provision, £10 a pound for basic hardware by the Department of Industry. The programme is now well underway with an estimated 98% of secondary schools and 30% of primary schools already possessing micros (but not peripherals) at an estimated total cost to central government of £14 million.

The MEP, funded by the Department of Education, is the second, complementary stage, set up to develop educational software and aids, to provide in-service training for teachers, and to co-ordinate and publicise these activities.

The programme had a bumpy start. Originally intended to be a £12 million four-year programme, it was caught up in the 1979 General Election, was delayed a year and ended up with £9 million to be augmented to cover inflation. The spending has been: 1980/1 - £1 million; 1981/2 - £2.8 million; 1982/3 - £3.6 million; 1983/4 - £4.3 million. The additional £9 million for two more years marks a plateau.

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The MEP also backs development of educational aids.

Examples include a microprocessor-based measuring device developed by Leeds University which retails at £175, and "Buggie", a programmable robot device developed by MEP for the BBC Computer Literacy Project, which will cost schools about £100.

Paradoxically, the more expensive aids such as these cost less per unit than those simpler items. Fothergill explained: "They are just the sort of thing that we get Rotary Clubs or Parent Associations to donate. The great difficulty is to get funding for something you can't stick a bid on, like a box of tissues."

The exhibition of electronic and control technology developed in and for schools in Birmingham displayed a wide range of inventiveness, and adaptability. For example the pupils at Alser primary school in Cheshire had made their own buggy for £1. The MEP is closely concerned with developing the curriculum, and has regular meetings with curriculum boards and the universities. There are signs that curriculum may increasingly cover social implications of computers in addition to the electronic aspect. The National Union of Teachers is been pushing for this.

Some 15,000 secondary teachers have taken two-day courses in computer awareness, and many are taking part in more extended in-service training courses organised by the MEP.

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PARTNERS WITH JAPAN

East-West links shift emphasis

by Kevin Cahill

WHEN it comes to collaborative deals with Japanese computer companies, ICL is far from alone among large Western computer companies, according to Schinricho Kakizawa.

Speaking to the knowledge-based engineering department at the South Bank Polytechnic in London, the Japanese technology futurologist told his audience that the Fujitsu-ICL deal was typical of the way Japanese computer companies had operated since the war.

What had obscured the "twining" process from UK eyes was the fact that most of the early deals were with American companies and the deals were partly aimed at helping Japan to recover from the effects of the Second World War.

But many observers, including Kakizawa, expect IBM to treat Hitachi with considerable care over the civil suit still outstanding between the two companies.

However it is the table of Japanese suppliers to IBM which aroused most interest among Kakizawa's audience. Apart from the fact that the list includes just about every major Japanese computer company, it also includes Hitachi as a supplier of laser printers to IBM.

Kakizawa had included the subsequently announced deal between IBM and Mitsubishi which was widespread news since early last year, despite several denials from IBM at various stages of the year.

Kakizawa also discussed the relatively new deals between US and Japanese companies. As he pointed out, there has been a recent drift towards a change in old relationships exemplified by the links between Hitachi and Burroughs and Mitsubishi and Univac.

In the post-war arrangements, the Univac presence in the Japanese computer industry was represented by Oki/Univac. For about four years Oki has been showing increasing signs of wanting to go it alone, although the company still supplies Univac machines.

On the other hand, the Burroughs relationship with Mitsubishi has been effectively creating a second source at Mitsubishi for chips and peripherals.

Mitsubishi in turn has been looking for a new Japanese partner to replace the now defunct RCA-Sigma deal and the company is a front-runner for a major collaboration with Burroughs.



KAKIZAWA... Identified IBM as a leading "purchaser" of technology from Japanese companies.



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Over the past two years, the Co-operative Bank has transformed its data entry... Nicholas Enticknap reports

Co-op takes the 'unfashionable' path to efficiency

DATA processing managers looking for increases in efficiency and productivity could do a lot worse than take a close look at their data entry applications. This unfashionable part of the DP operation often escapes attention - it's probably been running smoothly for a number of years, not causing any problems, and there has been little in the way of technological innovation to force a re-appraisal.

Online applications have attracted a lot of attention and interest, but traditional batch data entry, though still for many applications the only cost-effective method, has been comparatively ignored.

In fact, however, there are significant gains in cost-effectiveness to be made in many installations. Key-to-disc systems, for example, have gradually incorporated all the same developments in microelectronics technology that have had such an impact in computing eco-

nomics generally. They are more powerful, more reliable and cost significantly less than they did five years ago.

Many of the organisations that still use punched card equipment can now gain from a switch to key-to-disc when they couldn't before.

A case in point is the Co-operative Bank, which over the past two years has radically transformed its data entry operations.

The transformation started at the bank's processing centre in Skelmersdale. This is the clerical and computing heart of the bank, with a mainframe installation based today on twin IBM 3031s and a 4341. The main application is the processing of customer accounts.

Cheque reading is done by high-speed MICR readers, but cheques that cannot be read in this way for any reason, plus all transaction documents that do not have MICR characters, were entered to the mainframes via specialised data

capture equipment. Prior to installation of high-speed reader sorters this semi-automatic equipment processed all transactions but was inappropriate for capture of manual items only.

As a result, the Co-op looked around for an alternative solution and decided that the time was ripe to move to key-to-disc. The bank also negotiated the sale of what would become surplus equipment on the condition that the delivery of the new equipment would be made by a certain date. The choice of key-to-disc supplier was, therefore, determined not only by technical factors, but also by the ability to be able to deliver within the prescribed timescale.

Rediffusion Computers was the supplier chosen. The system was a twin R400/70 with 14 workstations (a duplex system was necessary to avert any possibility of downtime). Each processor had a five Mbyte disc, and the configuration was

SHAW... Planning further data entry developments.

completed by matrix printers and a switching unit to enable a rapid changeover of processors if necessary.

As Jack Shaw, one of the bank's systems managers says: "This move to the most modern equipment actually saved the bank money, as the rental cost of the R400 system compared favourably with maintenance charges levied

on the previous kit." The bank decided on rental for the first 12 months for precautionary reasons, but was soon convinced of the value of the system and elected to purchase it before the 12 months were up, he said.

Once the system was installed and processing the customer account transaction documents satisfactorily, it became clear that it could also be used to increase efficiency in another area. This was the bank's Handycard operation, a shopper's card facility for customers that allows them to spread out the cost of their purchase in Co-operative stores over a period of time.

Up to last year, the processing had been entirely handled by a bureau but a decision was taken to bring the operation in-house.

So the decision was taken to put the processing of the credit card transaction in the Rediffusion equipment. It has, of course, considerably increased the workload on the R400 system, and accordingly the bank has acquired an extra 10 workstations.

That workload is now being still further increased by a policy decision to put all remaining data entry applications at Skelmersdale on to the equipment. These are mainly lower volume applications - cheque book requests and the like.

Previously run on various earlier types of equipment. That process was completed in November.

The original cheque reject and non-MICR processing application has now been taken off the system. Early this year the bank decided to consolidate its internal clearing operations into its London Clearing Centre.

That meant a need for a new data entry system. It also meant that the previous link between the data entry equipment and the mainframes - physical movement of magnetic tape - was too slow.

Management at the head office in Manchester needed to have access to the day's cheque-clearing data on the same day, said Shaw. As a result, the bank started looking for a system with RJE facilities.

In the event, it was to Rediffusion that the Co-op turned again. The choice of the R400s had proved a happy one, as Jack Shaw said. "The equipment and software have proved extremely reliable. And when we had problems, I've liked the service. Faults have been fixed very quickly, and Rediffusion has provided a lot of helpful advice."

The new equipment was a twin R50 system. The Co-op was able to



Rediffusion equipment in use at the Co-operative Bank.

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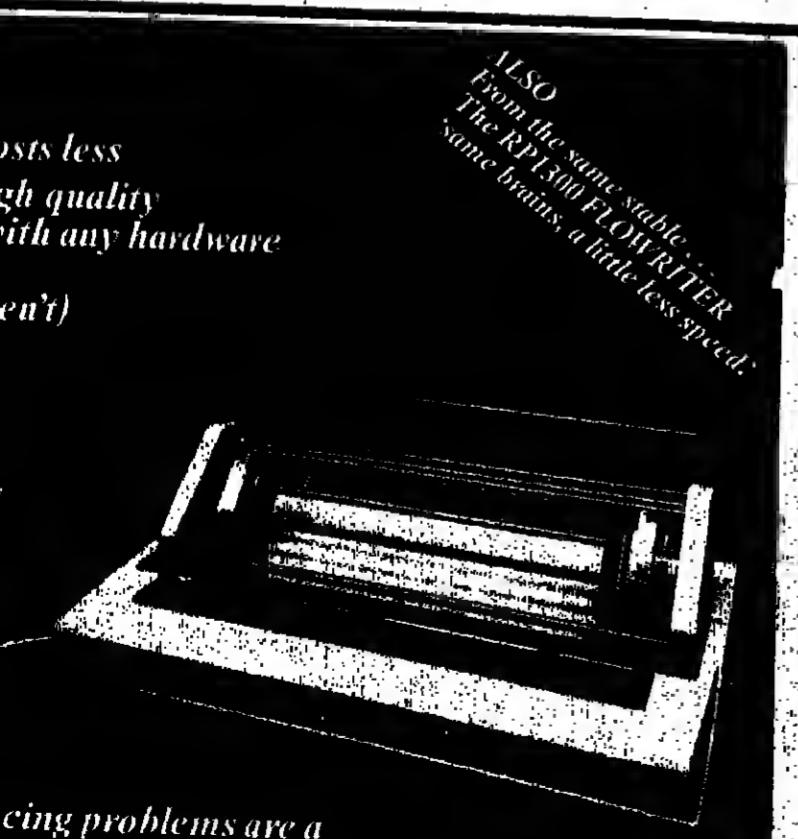
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SOFTWARE MONTH

Until recently DEC saw itself as almost exclusively a hardware supplier. Now the company is concerned to improve the software of its systems

DEC's clangers on the road to better systems

DIGITAL Equipment has never been renowned for its software. In the early days, of course, the company never aspired to the lofty heights of software excellence: but in more recent years, under the leadership of its chief, Ken Olsen, it has shown a growing and often improving attitude towards systems and applications software. On the way, it has made a few errors and dropped a few clangers.

One of the most successful software packages ever produced by DEC is WPS8, the word processing system that started life way back in the mid-Seventies on the standalone WS78 word processor.

WORD11 has become a world leader in word processing for the PDP-11 range, while the WS200 has disappeared from view. But the story doesn't end there, be-

cause last year DEC went to DPD and bought the rights to sell a RSTS version of WORD11, now called DECword.

If this was a solitary tale, it could be put down more to bad luck than poor planning. But it isn't. There is yet the story of Trax an even more horrendous corporate clangor.

At any rate, the company did nothing about putting WPS8 on the PDP-11 range. In the meantime, the software designers had sufficient faith in their own ideas to leave DEC and form their own company, Data Processing Design (better known as DPD) to write a word processor for the PDP; the product is WORD11.

WORD11 has become a world leader in word processing for the PDP-11 range, while the WS200 has disappeared from view. But the story doesn't end there, be-

cause in early 1978 the UK-produced monitor, TPM70 (Transaction Processing Monitor for the 11/70) was released and installed at CIE, and has worked very well ever since. At the same time, the lessons learned on TPM70 were applied to some half dozen other CSS projects.

At this point, or so the story goes, the UK project leader concerned flew to DEC headquarters in Massachusetts to persuade senior management to adopt TPM70 as a corporate product. But horror of horrors - he was merely told that another product, TPS-11, was about to be officially launched as Trax.

The UK software team tried to persuade DEC that Trax suffered from at least two major design flaws that would inhibit its market success: first, it needed special and expensive new terminals, the VT62, and second, no other software could run at the same time.

In other words, even program development would entail shutting down the system and rebooting a different operating system. But DEC US was adamant, and effectively strangled further development of TPM70. This had two effects: CIE threatened to sue CSS, which cost DEC's substantial out-of-court settlement. But perhaps even more damaging, it started a steady migration of the UK team to pastures new.

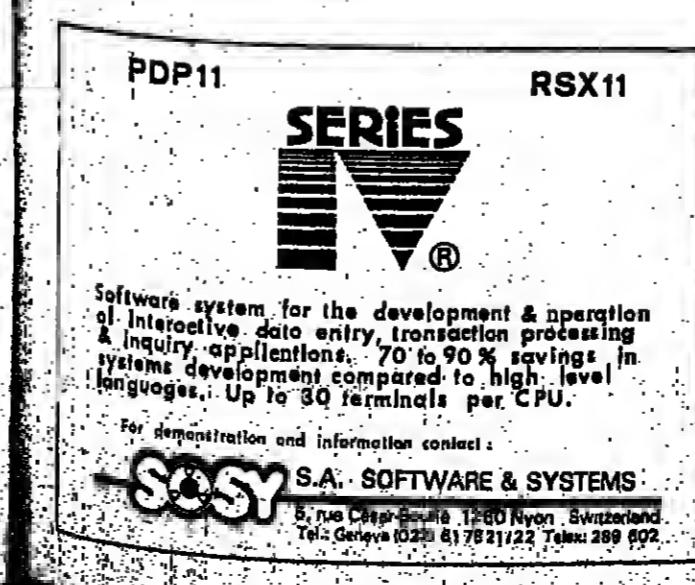
Meanwhile, Trax was released with all the success of what has been described as "a damp squib". More and more software problems came to light in the field, and by the time that DEC had gained some 30 worldwide Trax customers, it had become clear that the product was not commercially viable. By 1981 DEC seemed to have abandoned the product, and spent some time trying to persuade its customers to do the same.

Trax is dead; but TPM70 lives on. It migrated with its designers from DEC to Systech, where the enterprising partners of the Seventies, John Gow and John Parkinson, adopted the wulf. It grew and evolved, and finally emerged as Systech, the successful Systech TP system for the Vax range of superminis.

Can it be a simple coincidence that DEC, like so many other major US companies, is now investing heavily in UK software?



PARKINSON... Adopted TPM 70, renamed it Systech and turned it into a success.



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DEC is a front runner in the personal market

Company aims to be the leading source of micro applications software

After the initial "fee-in-the-water" launch of the Robin personal computer - a VT102 terminal with a processor transplant - DEC has finally emerged as a leading contender in the personal computer marketplace.

The three major products, initially launched in the summer of 1982 and effectively re-launched in January 1983, are finally appearing - and selling. In fact, Hamilton Rentals, a UK company that has been specialising in DEC word processors since 1977, has just announced that it is the first of a small number of dealers signed to handle the DECmate II, and that within days of signing the agreement, it had already sold the greater part of its initial stockholding to Rothschilds, Citibank, Shell and so on.

In many ways, the DECmate II is the most interesting of the new

machines. It is a direct lineal descendant of the WS78, still running the original WPS8 software, but with the addition of maths.

This time, however, DEC has paid cursory homage to the current vogue for "convergence" in small systems: not only is it a word processor, but with the addition of a Z80 board it can become a CP/M micro as well. The concept, of course, is little different from many other new micros that concentrate on one processor but also provide the option into the software library of another. The primary processor for the DECmate II is the 6102; a PDP-8 on a chip.

It is the Rainbow, and perhaps even more so, the Professional personal computers that are provoking most interest at the moment. Both have new and exciting features.

To make the most of this concept, DEC and Digital Research collaborated in the design of a new operating system: CP/M 86/80, a hybrid 8-bit CP/M and a 16-bit CP/M 86. It includes a fea-

ture named by DEC as "soft sense," a function that allows either 8-bit or 16-bit CP/M software to run without any operator intervention.

The CP/M 86/80 operating system itself determines whether the applications package be an 8-bit or a 16-bit program, and then executes the instructions with the appropriate processor and operating system subset.

Paul Bailey, director of European operations for Digital Research, pointed out that DEC is one of the first companies to implement 8- and 16-bit applications in the same box. In this case, the implementation is a standard part of the product - the user doesn't have to buy, say, a special card.

"I believe that DEC followed this trend because it recognised the

■ Turn to Page 19



CATTELL... "MSDOS will also run".



Range of micros ties in with big machines

■ From Page 18

"This means that users enjoy total source code compatibility for applications on either range of equipment. As DEC will also be selling CIS Cobol on the Robin and DECmate II there is a clear growth path for Cobol users from the smallest DEC personal computer to the top of the range."

The top of the range is, of course, the Professional 300 series, comprising the 325 and 350 models, and claimed by DEC to contain a 16-bit PDP-11 minicomputer. Both include 256 Kbytes of main memory. Each system includes a diskette drive with 800 Kbytes of storage capacity on two 5 1/4-inch diskettes. An integral 5 Mbyte Winchester disc is one of the main options.

At the hardware level, the processor is the P11, also used in the PDP-11/23, and the screen is a VT102. There are significant software innovations, in that the Professional run under a new operating system called P/OS. However, although P/OS as a whole may be new, large parts of its have a familiar look to those who know RSX-11M. P/OS was in fact derived from RSX-11M plus.

Jarvis concluded: "The conversion of IPL from RSX-11M was not without its interesting moments, but probably only slightly more difficult than the corresponding conversion from RSX-11M to VMS which we made a few weeks ago."

Not everyone, however, is totally enamoured of the new Professional. Envisaging at a recent DEC US presentation on the 350 we learnt the following points: The terminal attached to the PC350 is dumb. Everything it does, is performed by the Terminal Firmware task that sits on top of the Terminal Driver. This produces a heavy overhead on the processor.

The use of memory appears to be the main query hanging over the 350. Of the 256K available, about half is used by the P/OS operating system and the Terminal Firmware task. Furthermore, software running on the PC will probably be linked, or least, with RMS, FMS, Graphics routines and a language specific OTS - each of which (other than FMS, which is a memory-resident) is implemented as a cluster library.

Once all of these have been loaded, there would appear to be little room left for the applications program. The result is that even in a single-task operation, the 350 spends much of its time swapping library routines in and out of memory. And because of this, it is already rumoured that DEC soon will change the P11 (11/23 chip) to a J11 (11/70 chip).

For a final word, we asked David England of DM England and Partners, for his opinion of the new DEC hardware and its effect on the market. "For a software company," he replied, "the advantage is the breadth of the DEC range of compatible equipment right through from the Professional micro to the large Vax mainframes. For example, our Final (financial modelling and analysis system) offers identical facilities across the entire range of DEC equipment. This greatly simplifies the problem of support. We see P/OS RSX-VMS as a remarkable growth pattern for mature users of microcomputer equipment."

Pachtree managing director John Hale whose company has signed as a DEC software supplier.



Paul Bailey (right) with Digital Research founder and president Gary Kildall.

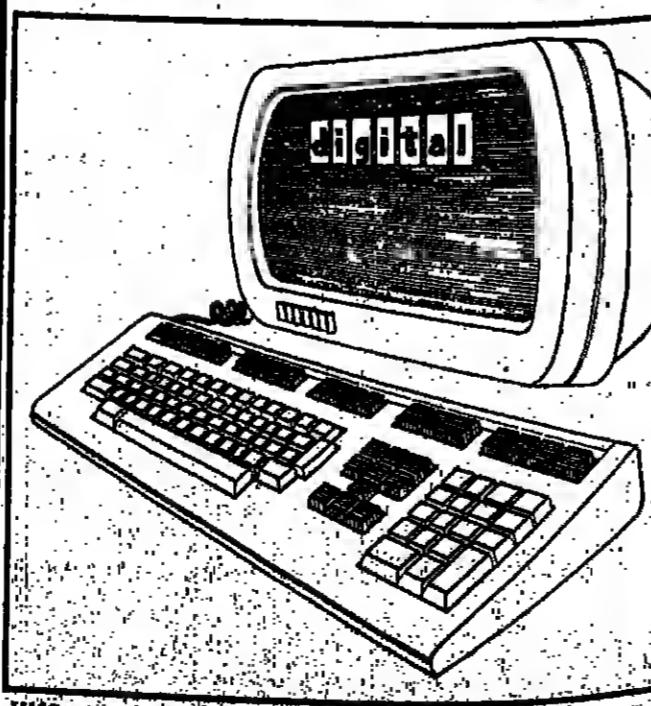
Operating systems face major change

THAT Digital Equipment has never been renowned for the success of its software is a view shared by Philip Stephensen-Payne, a technical software consultant with DEC OEM, Systems. He said: "Ever since the PDP-8 days, DEC has been producing some of the best minicomputers available. From the point of view of hardware alone, the PDP-8, PDP-11 and Vax-11 ranges are superlative, both in terms of flexibility and reliability.

If anywhere, DEC tends to fall down rather more on its software. In terms of operating systems, seven years ago DEC had fairly well-defined operating systems for the PDP-11, each for a particular class of user (RSTS for the commercial world, RSX for the scientific world, and so on), but as time went by, the operating systems began to merge together as RSX became more real time processing and RSTS began to allow real time processing.

While this flexibility was very nice in many ways, it inevitably led to all the inefficiencies inherent in

■ Turn to page 19



VMS was designed as a multuser, real-time and batch system.

SOFTWARE MONTH

THE MAINFRAME and micro worlds still have a rather different culture, and recently I found myself wondering about the difference between financial planning systems (mostly mainframe affairs) and electronic spread sheets (mostly micro). Market leaders in the financial planning area include products like FCS, IFPS, and Europer; while leading spread sheets include VisCalc and SuperCalc.

At first, it looked as if the two types of product provided more or less identical functions, the main difference being price and user friendliness. I thought of financial planning packages as being less user friendly, and more expensive due to the costs of sale and support in the DP environment. Spread sheets, on the other hand, seemed to be the cheap and cheerful micro equivalents.

It turns out that this view is absolutely incorrect. Financial planning systems (called FPS from now on) are far more powerful than spread sheets, although they address the same kinds of question. As their experience grows, many spread sheet users find themselves needing the kinds of facilities FPS can offer. As for an ease of use, spread sheets are somewhat easier to learn - but users are soon forced into intellectual gymnastics to do what they want.

Price difference, too, is not necessarily large. You can buy an

Separate ways to financial modelling

FPS for a micro at micro-type prices. The best known is DSS/France, also known as MicroModeler. Also, vendors of mainframe and mini-oriented products are bringing out micro versions. Market leader FCS is now available (as Micro-FCS) and Comshare is offering its Target system.

The first difference you notice between FPS and spread sheets is that the way you go about doing things is different. With spread sheets, data and formulas define cell dependencies are directly added into a blank electronic spread sheet. The financial model and its data are locked together.

Lastly, FPS offers sophisticated ad hoc report writing facilities.

Apart from these general differences of architecture, there are many other differences between spread sheets and FPS. Some of the most important include: Model size. Models soon become too large on a spread sheet. Support. FPS vendors generally provide users with classes and a

telephone hot line. Programmers' front end. FPS models can be presented to users via a turnkey front end. Auditability. It's much easier to determine how a model is defined with FPS.

Learning time. Spread sheets are easier to learn.

Processing. FPS have advanced and very useful processing facilities, such as risk analysis, sensitivity analysis, hierarchical consolidation, statistics and forecasting, linear optimisation and 'goal

seeking'.

Put crudely, FPS are for people who take their modelling seriously, while spread sheets are for the dilettantes (I say this as an enthusiastic spread sheet dilettante, myself). Since the two types of financial planning simply never need multi-dimensional, multi-currency consolidation of international subsidiaries, for example. Although there are relatively few such users, they can justify paying

the clear-cut distinction between spread sheets and FPS gradually fade?

The correct answer is an equivocal one: in some ways, yes, and in some ways, no.

On the one hand, spread sheets are definitely getting more sophisticated, as a result of user demands.

FPS developers are also learning from spread sheet technology. In particular, some of the more elegant characteristics of the micro world are being incorporated.

Over the long term, differences are likely to remain. There will always be features that planners of large companies will need, that most people doing financial planning simply never need - multi-dimensional, multi-currency consolidation of international subsidiaries, for example. Although there are relatively few such users, they can justify paying

David Ferris is a software consultant based in San Francisco and London. Covering technical, marketing issues, he writes for hardware, software and consulting firms.

A high price for the extra functionality.

So it looks as if 10 years from now, the market for financial planning packages will still offer two types of product: cheap, no market packages with capabilities between today's FPS and spread sheets and ultra-sophisticated, feature-laden FPS serving the top management of big firms.

David Ferris

ROUND UP



MSA takes \$100 million

MANAGEMENT Sciences America has become the first independent software company to earn \$100 million in a year. Revenues in 1982 were \$101.2 million, 38% up on the year before, and International operations manager Michael Hunt says that the company is looking to increase the growth rate to 50% this year.

Altergo changes

ALTERGO is shaking out its top management as it centralises its operations under a new company, Altergo Information Systems. The aim is to put more emphasis on marketing, and already an American, Leonard Levy, has been appointed as managing director, while two of the previous top men, Dick Jones and David Brownlee, have gone.

DEC R&D centre

UP TO 300 jobs will be created in the UK during the next four years as Digital Equipment builds its first research and development centre outside the US. David Barbe, managing director of DEC UK, said the UK was chosen for the £7 million centre because UK software technology was as good as anywhere.

C for CP/M

DIGITAL Research has rewritten its widespread CP/M operating system in the C language to make it more portable. This will bring CP/M into direct competition with the Unix operating system for users with machines based on Motorola's 68000 chip such as the Apple Lisa and Hewlett-Packard's 9800 series.

Consumer law

COMPUTING services companies will face new consumer protection laws this July under the new Supply of Goods and Services Act which will extend the powers of the present Sale of Goods Act from products to services. "This could have significant impact because at present disputes revolve largely round the wording of contracts," says Doug Ryelands, director general of the Computing Services Association.



PRODUCTIVITY TOOLS

Breaking down the wall between 'them' and 'us'

Last year Computer Weekly published case studies on users of two advanced software development tools, Cincom's Mantis and UFO.

Here, John Wilkinson, manager of materials and project systems at John Brown Engineers and Constructors, describes his company's experience with Sperry Univac's Mapper system which has helped users and DP personnel arrive at a better understanding.

THE INTRODUCTION of Mapper to the John Brown Organisation happened some two years ago, but in order to understand its impact on the environment into which it was introduced it is necessary to begin this story two or three years earlier.

John Brown Engineers and Constructors are part of the engineering and construction division of the John Brown Group. Their involvement in the engineering, procurement and construction of petrochemical, oil and gas installations both on- and off-shore throughout the world has created a need for sophisticated management systems - systems which require computers to provide the means of simplifying complex manual operations. Four or five years ago this need was primarily met by systems of the batch process card input variety. Not particularly unique, but to appreciate the impact of Mapper it is important to understand the purpose and uses of these original systems.

It is a means of utilising mainframe capacity via remote terminals for instantaneous response covering a whole range of activity from SEARCH, SORT functions through to ARITHMETIC and more difficult RUN DEVELOPMENT.

It eliminates the lengthy dialogue phases with systems analysts and programmers by providing the operation staff with sets of simple English language instructions facilitating use by all grades of personnel from non-technical clerical through to senior management and directors.

These are just a few of the uses to which Mapper has been put by John Brown personnel since it became available last autumn. There are now over 140 registered users for the facility who have either old files set up by the Mapper co-ordinators or at least are showing considerable interest. A user group has been formed on which all users and the DP department are represented and via which problems and developments can be aired and discussed.

The rapid development of Mapper use in John Brown has shown how eagerly people will accept systems or facilities over which they have a more obvious means of control.

Up to now there was a "them and us" world of DP personnel and users with little cross fertilisation. The barriers are now coming down. Mapper is providing the means by which users can achieve relatively instant success in setting up systems for their own use. But this work must be co-ordinated and this is where DP personnel have an important part to play. When the user has got what he wants DP can help to improve how he does it while at the same time ensuring that one user is not duplicating the work of another.

be easily created from data held in the databases. Files which were then used to keep the records up to date as well as create the data required by the operators and accountants. The importance of this simple statement is that the work was done very quickly by project staff with very little input from DP personnel. It became a simple task carried out by clerical staff.

This was the beginning. It was clear to all that we now had a tool in our hands which would make it very easy to process and manipulate large quantities of data. The speed with which information could be set up and used depended more on how fast data could be typed rather than how quickly programs could be produced.

This ability of users to produce visible results without waiting for their requirements to be interpreted has an even more important effect. It changed attitudes to the computer. Scorn and derision turned into praise and enthusiasm.

The black box became understandable and people wanted to be involved in this exciting development.

Site staff designed systems to control work and assess progress, engineering departments computerised schedules of design data and set up drawing control procedures, administrators' input management, loading records and cost controllers used Mapper as a real time working document.

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The increased data responsiveness to user needs and the ability for questions to be asked which were not previously anticipated makes it popular at all levels.

Creation, maintenance and manipulation of data to provide prompt printed responses enhances its value to both JBECC and its clients.

The production of customised reports within a total security environment is obtained via the allocation of a unique password mechanism, through Mapper co-ordination which prevents third parties from acquiring access to exclusive data, and restricts staff in the creation of 15 major data-bases.

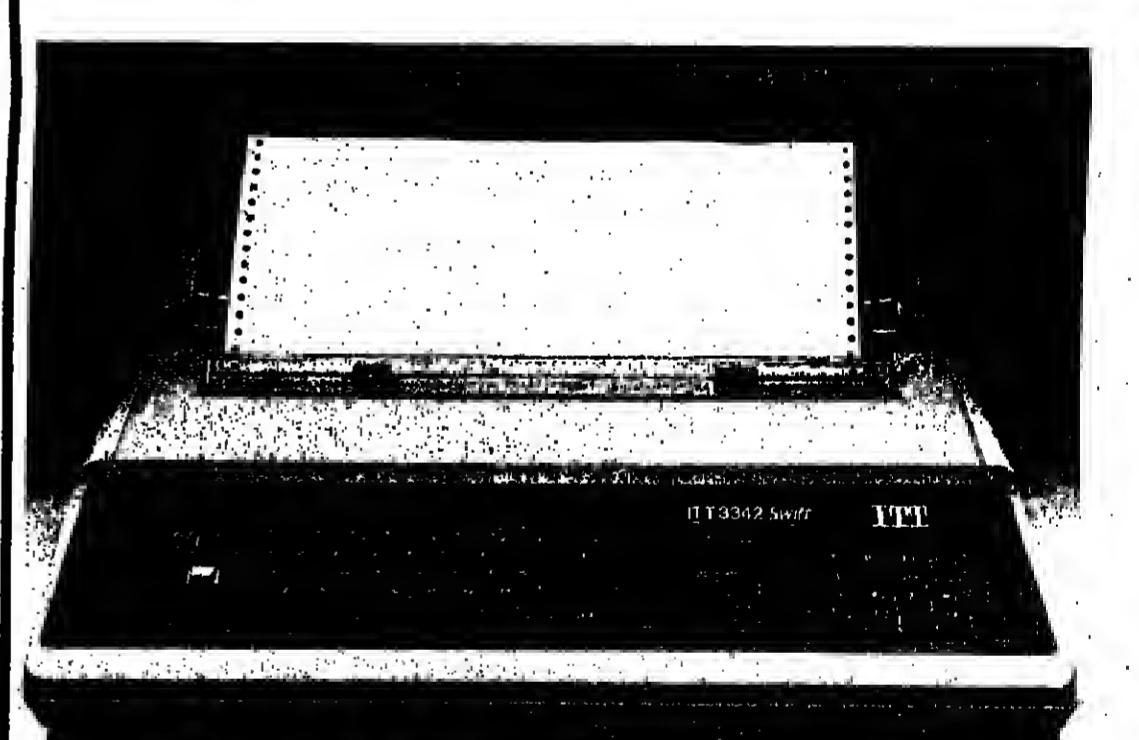
During 1978 QLP (Query Language Processor) became available which allowed the user to interrogate databases by writing his queries in simple language. Project staff were trained to carry out interrogations which helped to limit the reliance on programs for the day to day routine work, although there was still a requirement for specialist personnel to provide the more complex systems needed to analyse the vast store of data which was being created.

Since 1978 the data was still being analysed and used by accountants and operating personnel, but the methods of processing had changed, fairly considerably and it is these changes which are of particular interest today.

In the summer of 1981 much of the project data was computerised and the accountants now wanted it analysed while the plant operators



WILKINSON... Mapper solved some of the John Brown Organisation's problems overnight.



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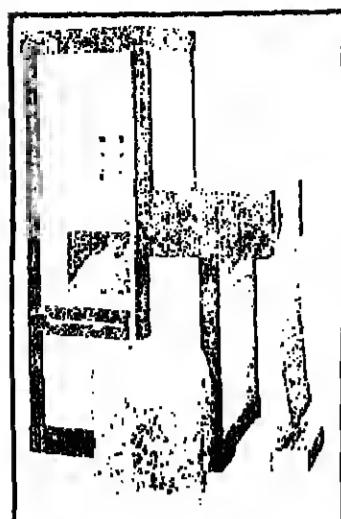
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Construction of Sullom Voe terminal.

PRODUCTS



Alternative for IBM 3270 terminal users

IBM users now have an alternative to IBM's 3270 terminal from the leading UK telecommunications group, Cable and Wireless. The company's trading subsidiary, Cable and Wireless UK Services, has launched the 5270 terminal made by a Canadian firm, Comterm.

The 5270 has the same functions as the 3270 but offers "considerable" enhancements. It consists of a controller, screens and printers.

The controller can support 32 screens and printers in any combination. The terminals are linked through a baseband coaxial cable using a daisywheel principle. Cable and Wireless points out that this offers considerable savings in wiring and installation costs and makes for a tidier job. Extra terminals are simply connected to the nearest display or printer.

Communication speeds of up to 19,200 bits a second are possible under both IBM's SPC and SNA SDLC protocols.

Colour and black-and-white displays can be mixed with a variety of printers without changes to the controller. Operating software is stored on floppy discs.

Cable and Wireless UK Services (CW), 82-83 Blackfriars Road, London SE1 8HQ. Tel: (01) 633 9577.

which can be changed easily by the user to suit different needs.

The terminals are available in a variety of sizes and with a choice of keyboard layouts. All screens support the APL character set. Four- and seven-colour screens are available.

The printers range in speed from 150 characters a second to 600 lines a minute. They can be attached to the back of the screens to save wiring. The controller can treat a printer attached in this way as an independent device.

Cable and Wireless UK Services is selling, installing and supporting the 5270s from its seven regional offices.

Market development manager Jim Ure said, "As we are not a manufacturer we can choose the best products. The Comterm 5270's ability to meet current user needs, plus its flexibility for future enhancement, ensures we can offer users a no-risk option irrespective of the direction their data processing takes."

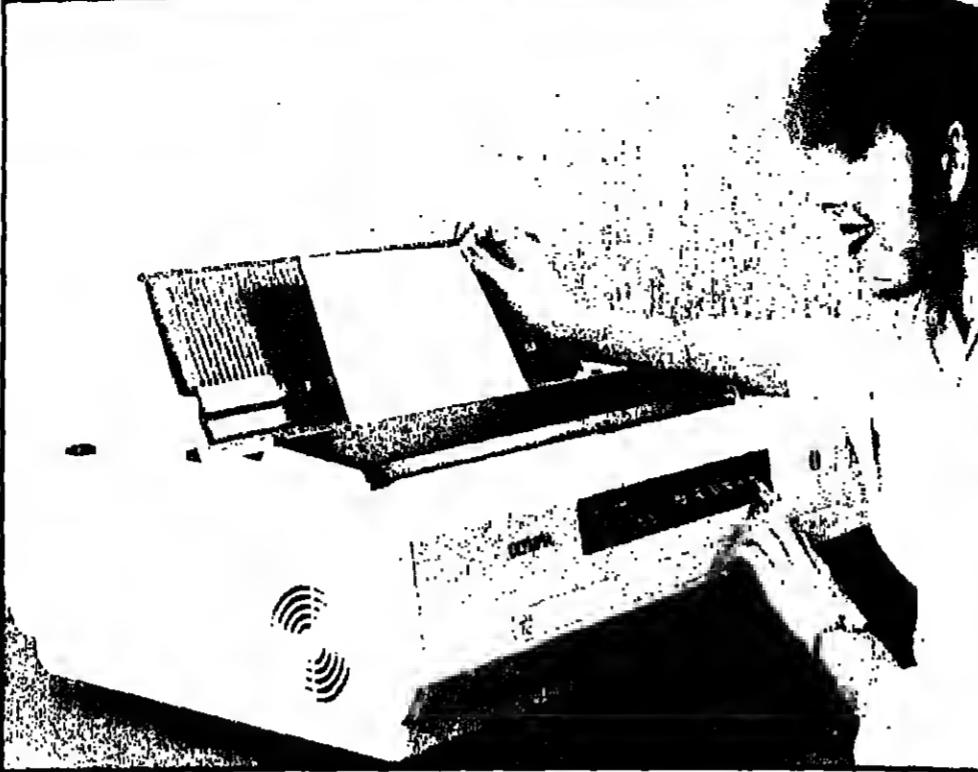
Comterm's new office machines, designed for fast, safe disposal of office papers (including computer printouts), shred, compact, and bale automatically.

The Destroy Shred'n Baler is simple to operate and takes no special skill. In addition to saving 75% of the space required for waste storage and providing greater document security, baling paper waste may lower insurance costs because of reduced fire hazards, and better, safer working conditions.

Additionally, pilferage is reduced because "good" merchandise can no longer be mixed with loose waste leaving the building. Total savings can be considerable.

The Destroy Shred'n Baler 6104 shreds continuous forms at the speed of 71 feet per minute or 30 sheets per pass through its 16in throat. When the compacting chamber is full, a monitoring switch automatically shuts off the shredder and actuates the hydraulic plunger which compacts the waste with four tons of pressure.

Electric Wastebasket Corp. (CW), 145 West 45th Street, New York, 10036.



The Olympia ESW 3000 RO printer.

Printer links to 'any micro'

OLYMPIA International has launched a low-cost, high speed daisywheel printer, the ESW 3000 RO.

chps, with 10, 12, 15 and proportional pitch selections. Its completely new print unit, ribbons and daisywheels have been developed to give correspondence quality reproduction at maximum speeds.

Interfaces with Olympia's ESW range are currently available from the company for most other manufacturers' equipment. The range

includes Centronics, RS 232, TTY 20mA current loop, IBC BUS, Commodore IEEE and Qume Diablo 13-bit parallel.

A range of paper-handling devices are also available.

Olympia Business Machines (CW), Olympia House, 1990s Old Marylebone Road, London NW1 5QS. Tel: 01-261 6788.

Operator strain reduced

THE Televideo 970 intelligent terminal is now available in the UK from microcomputer and terminal distributor Midlectron. The 970 is fully compatible with Digital Equipment's VT100 yet costs just under £300. It is claimed to have been designed specifically to cut operator strain.

The terminal has X-On/X-Off or DTR communications protocols, with standard RS232C printer and computer interfaces, plus an RS422 or 20-millamp current loop option. Full VT100 editing and other features are standard. The screen can display 24 lines of 80 or 132 characters.

The display is wider than that of the VT100 at 14 inches. It has a phosphor screen which can be tilted. The display of 128 with an addressable/readable cursor.

Geac UK (CW), Gillingham House, 38-44 Gillingham Street, London SW1 6HV. Tel: 01-828 5235.

Geac has adopted this competitive pricing policy on the 401 to

Anti-tilt and 'slam shut' cabinets

SHANNON Datastar has updated its MA range of microform filing cabinets, introducing the unique combination of an anti-tilt device and 'slam shut' drawers for safety and convenience. Two and five drawer versions of the cabinet have also been introduced to the range.

Available with two, five, seven or 10 drawers, the lockable steel cabinets are finished in either brown or parchment. The drawers are wider than those in standard microform filing cabinets, also produced by Shannon Datastar, to allow more compact storage of aperture cards and microfilm cassettes, including video cassettes, as well as microfiche and microfilm cards.

Shannon (CW), 36 Coyote Road, Beckenham, Kent BR4 4BH. Telephone 01-650 4918.

MA range of cabinets updated.

Tiny terminal for £700

THE General Systems Division of Geac UK has launched the low-cost 401 Informer terminal. In line with the product range's philosophy of "small is beautiful", the new 401 weighs only 14 lbs, yet offers a substantial cost-saving over competitors' specialist terminals, says Geac. Price starts at £700.

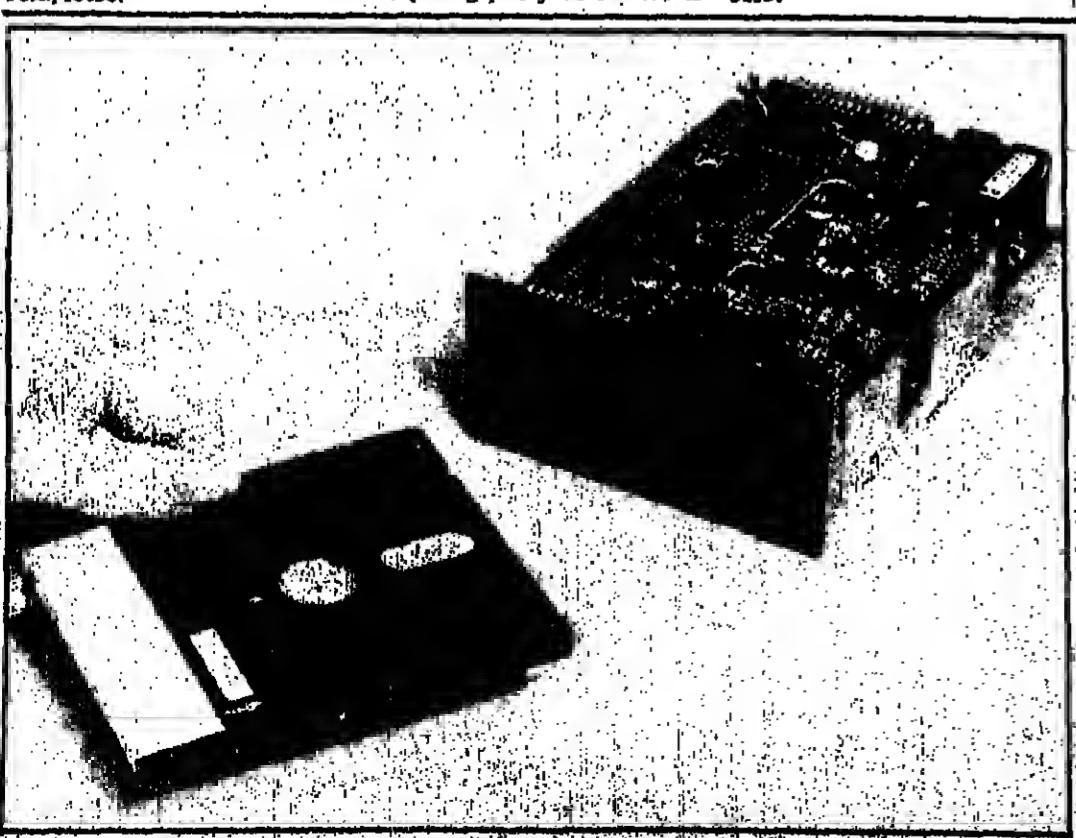
Geac has adopted this competitive pricing policy on the 401 to

increase its market share for specialist terminal products.

The base of the Informer 401 measures 13 inches x 14 inches, with a screen size of nine inches that allows for a displayable character reading of 128 with an addressable/readable cursor.

The display is wider than that of the VT100 at 14 inches. It has a phosphor screen which can be tilted.

Midlectron (CW), Nottingham Road, Belper, Derby. Tel: (077 5235.



MPI's latest OEM floppy disc product adopts the three-inch standard.

MPI opts for 3in drive

MPI Europe, subsidiary of Micro Peripherals Inc, has released details of its latest OEM floppy disc product. Following in the tradition of the Slimline which at only 2in high is currently the world's smallest 8in floppy disc drive, and the more recently announced half-height 5½in drive, the company has now introduced a 3in drive which adopts the microfloppy standard originally proposed by Hitachi, Maxwell and Matsushita.

MPI's chairman and chief executive officer, Ralph Gabai, said on making the announcement,

"After carefully researching what our customers require of a microfloppy, we concluded that the 3in design was the optimum choice."

"Our main criterion was to supply a drive which would utilise its self-cleaning capabilities and the automatic shifter which protects the recording by opening only when the disc has been safely inserted into the drive. Microfloppy disk drives are currently available from Maxwell and TDK with other media manufacturers expected to introduce them shortly."

MPI's 3in drive, the Model

301F, offers the OEM advantage in many ways. First, that of its physically larger capacity. The disc can be 100% terpinned, allowing recording on both sides. There are 40 tracks per side packed at 100 TPI and recording can be single or double density.

These parameters translate into

a range of capacities from 128 Kbytes to 500 Kbytes per side. Rotational speed is 300 rpm, which gives a maximum data transfer rate of 250 Kbytes per second.

MPI has incorporated its

patented stepper-drive band

shutter technique resulting in a track to track access time of only 3ms; average access time is 5ms and latency is 100ms.

The Model 301F's front panel

measures 3.5 in wide x 1.5 in high and the unit is only 1in deep. A one-step, push-button door facilitates easy insertion and ejection of the disc and serves to protect the drive mechanism from the ingress of dust.

MPI Europe (CW), 11A Reading Road, Reading, Berks RG1 7LR. Tel: (07357) 4711.

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An international software house require three Support Programmers or Analyst Programmers to help in exciting new developments. Your two years' experience on PDP or VAX with a knowledge of operating systems will be invaluable. Exposure to a commercial environment would be useful and your ability to react intelligently and effectively to situations and problems will also be of help. Some travel is envisaged to implement systems and to assist users. These positions offer the successful candidate a good salary, an interesting and rewarding environment and the kind of experience that could be invaluable. Ring our LONDON office today for an immediate interview!

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We have been advised recently of a number of requirements for SYSTEMS ANALYSTS and SENIOR SYSTEMS ANALYSTS in or around WEST LONDON. The people sought will have had solid experience and be used to involvement in projects from feasibility to implementation. An exposure to on-line, financially-based systems in an IBM environment would be a distinct advantage in most cases. To discuss prospects contact our LONDON office.

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An outstanding opportunity has arisen with an Essex-based financial services group. An enthusiastic IBM COBOL Analyst Programmer is needed to provide support for a range of interesting applications with simple scope for user contact and systems analysis. If your experience has been gained in a DOS/VSE CICS environment this would be an advantage. Contact our LONDON office today.

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Our clients are an internationally known member of the entertainment industry. A PROGRAMMING TEAM LEADER is required with the experience and self-motivation to take the responsibility of getting the best out of others in the team. A considerable amount of DEVELOPMENT work is planned for the twin IBM 4341 (DOS/VSE, CICS) installation and ambitious Senior Programmers looking for real progress should contact our LONDON office now for an early interview.

MANCHESTER SENIOR ANALYST £11,000 NEG

A large manufacturing concern in the Greater Manchester area require a Senior Analyst or SENIOR PROGRAMMER with design experience. A background which includes development of on-line systems and MAAPICS would be a considerable advantage. A negotiable salary is complemented by the normal large company benefits - phone our BIRMINGHAM office soon.

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CENTRAL LONDON BASIC+, +2

If you enjoy user contact and the satisfaction of taking projects to completion then an opportunity exists for self-motivated graduate Analyst Programmers within a software house/service bureau. The work is interesting within the field of general commercial applications, and your ability would quickly be recognised and translated into a fulfilling career. There is plenty of scope to improve all aspects of your skills within this company. Call the LONDON number.

MIDLANDS ANALYSTS £9,000

Sound Systems Analysts with a background including the design and implementation of financial or manufacturing systems are required by this major British company. Commitment to the continued development of sophisticated systems has led to a number of excellent openings which should be discussed with our BIRMINGHAM office today.



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The project calls for the appointment of several technicians with varying degrees of real time programming expertise, but it is unlikely that candidates with less than two years experience will be considered. Ideally, you should possess knowledge of UNIX and have gained programming skill in the use of 'C' language, otherwise formal training will be given. For the more senior appointments, overall systems experience is required.

These positions offer significant opportunity for the advancement of technical experience, but more importantly, represent long term security within an Organisation committed to excellence with a vast range of highly marketable products.

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* Unix is the trade mark of Bell Laboratories
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In the first instance please contact Maureen Parker on: Waltham Cross 3320. (2824)

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Write to the Treasurer, Municipal Office, Hall Plain, Great Yarmouth for further details, or telephone Colin Watt, Senior Assistant Treasurer on Great Yarmouth (0493) 3233 Extn. 13. Closing date for applications Monday 28th March.

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The successful applicant will be expected to take full control of the Systems Department within two/three months of appointment and be responsible for:

- Maintenance and control of existing activities.
- The continuing implementation of Stock Control Systems.
- Leading the introduction of further developments including Shop Floor, Job Recording and Time Attendance Systems.

Applicants must offer at least two years' experience of mini computers in a varied industrial environment and be fully conversant with BASIC. A knowledge of Production and Stock Control systems is very desirable.

The salary, negotiable up to £10,000, is augmented by the company's bonus scheme and assistance with relocation expenses will also be offered if appropriate.

Please telephone or write to DP Selection Services quoting reference: W3031.

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These new appointments are within the Computer Operational Services Division of the group, and provide excellent opportunities for systems programming professionals to widen their particular technical skills and expertise in the professional utilisation of IBM's advanced SNA facilities.

A long term plan for the total computerisation of the group's wide ranging management information systems requirements into the late 1980's is underway. These important appointments will provide ground floor opportunities to the appointees to influence and shape the technical framework of the group's future information systems processing.

Applications are invited from systems programmers with around two years' plus experience in IBM OS systems software utilisation. Full training in advanced IBM systems software will be afforded in moving into MVS XA development.

Excellent starting salaries plus large company benefits will be provided to the successful applicants. In some cases, according to experience and starting grade, a company car may be provided.

Please send a ONE PAGE handwritten or typed career history list including IBM hardware and software exposure, current salary, home and office telephone numbers, current position and employer, age and educational attainments, or telephone for further details or an application form to SARAH KENNEDY at the address below, quoting reference number G1113. Applicants not wishing any confidential disclosure of details to client prior to interview should list companies of no interest on the back of the ONE PAGE list or letter of application. Applications are invited from either sex.

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Systems Analyst

Bucks

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Large subsidiary of a multi-national group seeks analyst to develop accounting and sales/marketing applications. Knowledge of on-line, database system techniques on either ICL or IBM mainframes is essential. Good fringe benefits, excellent salary and relocation assistance are offered. Ref. 586

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Although directly relevant experience is important, the main qualifications for these positions are energy, enthusiasm and initiative. Please write giving full details about yourself and your career to date to: P. Siraj, Senior Personnel Officer, Baric Computing Services Ltd., Forest Road, Finsbury, M13 7FJ. Telephone: 01-890 1414.



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**London West Computer Recruitment****MICRO SOFTWARE ENGINEERS**

Cotswolds

Our client is a well-established, independent company developing and marketing advanced, integrated, micro-processor based systems. These products have an international reputation for being dear market leaders in their field. The company now requires two additional staff for new development work and to assist with the implementation of systems with major customers.

Software Engineer £10-11.5K

Responsibilities will include: Software specification and development, on-going product support and some staff supervision. At least 4 years experience of Intel 8085 or similar assembler is required, plus knowledge of at least one high level language. An industrial, process control or communications background would be ideal.

Systems Analyst £8.5-11K

To be responsible for both technical and commercial customer liaison. Must be capable of creative design and clear formulation of product change/update specifications. A programming background will be useful; positive personality and business acumen essential.

Candidates for both positions will be at least 26 years old with relevant degrees or equivalent qualifications.

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Real Time Programmers

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Real Time Programmers

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Several large companies in the West are seeking degree standard programmers with 2-3 years experience. Familiarity with a real time high level language essential; knowledge of DEC PDP or VAX and/or Intel micros desirable. Attractive locations. Good salaries. Re-location assistance. Ref. 613

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Several large companies developing real time systems require project leading staff of degree calibre. A minimum of 4 years experience of high and low level languages is required. DEC PDP/VAX plus Intel micro experience is desirable. Attractive locations. Good salaries. Re-location assistance. Ref. 614

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Applications (three copies), giving names of three persons to whom references can be given, should be lodged with the Department Officer, University of East Anglia, Norwich NR4 7TJ. Enquiries: Dr. D. J. C. Smith, who may be obtained, not later than 8 April, 1983. No forms of application are issued.

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TELEPHONE: ROMFORD (0708) 750201

Defence Systems Software

Netherlands: Pkg to £18K

The Defence Group of a multi-national corporation urgently requires a number of Senior Programmers/Team Leaders, to join both the Applications and Systems Teams currently employed at its Development Department. Experience should have been gained in a real-time environment over a period of 7-10 years. Specific applications areas of interest are likely to include one or more of Command and Control, Process Control, Data Communications or Weapons. Ref. 170/A

Message Switching

Gtr. London: Salaries to £15K

Importantly, you should be fluent in PASCAL, FORTRAN or COBOL, ideally, also an Assembly language. Applications for the more senior positions will, in addition to management skills, have been responsible for the formal definition of the structures and interactions required to provide shared communication functions on at least one major system. Ref. 170/D

Software Development

Cambridge: Salaries to £12.5K

The Cambridge-based Research and Development facility of a rapidly expanding Micro Systems Supplier is currently seeking additional Programmers and Communications Design Engineers. Applicants for the positions of Programmer should offer a first or second class honours degree in a numerate subject and at least eighteen months subsequent experience in a micro-based software development environment. Fluency in a

Operational Analysts

London: Salary to £13.5K

A number of Operational Analysts are required by this London-based Consultancy. Academically, you should hold at least a first or second class B.Sc. Degree in Mathematics and/or Statistics. An M.Sc. or Ph.D. in Operational Research is an advantage. The ability to communicate effectively with O.R. staff and non-technical minded personnel. There will also be a degree of travel to clients' sites. Ref. 170/C

VAX/FORTRAN Progs

Inner/Greater London: Salaries to £11K

An International Systems Company specialising in the development and marketing of communications software is seeking additional Programmers and Designers for its London Headquarters. Candidates aged 22-27 years should hold a numerate degree and have a minimum of twelve months' FORTRAN programming experience preferably in a VAX environment. Ref. 170/E

Micro Development Engineers

North Bucks: Salaries to £12K

The European Development Headquarters operating system kernel into applications software, especially in multi-tasking, multi-processor systems or alternatively, have gained experience in the use of an M.D.S. to integrate hardware, software and firmware into application/demonstration systems. Successful applicants will be rewarded with a high salary and the opportunity to work on the latest generation of micros. Ref. 170/F

Technical Authors

London & Cambs: Salaries to £10K

We have recently been contacted by several companies seeking Technical Authors for London and Cambridge localities. Applications for all positions should have designed and written User documentation for at least one hardware or software product. A good command of the English language is essential as is the ability to communicate with both technical and non-technical personnel. Ref. 170/G

Process Control

Central London: Salaries to £14K

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Systems Division

your appointments register

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HEWLETT PACKARD to £9K
Commercial Accountancy Hampshire

HONEYWELL to £12K
Systems Programming experience Middlesex

DEC/HP/WANG/DG to £12K
Basic Cobol Barks - Surrey

IBM/RPG2 to £12K
Financial/Insurance Home Counties

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System exp. Essex

ICL/VM/EC or K to £11K
Financial Surrey

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On-line/Database Surrey

NCR 8200 to £14K
Financial SW LONDON

Analyst/Progs

BURROUGHS/COBOL to £14K
Commercial Surrey

IBM 34/38 to £15K
London/Home Counties/North

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Real time - Modelling Men - Essex - South West

IBM/BURROUGHS to £15K
Commercial Accountancy London/Surrey/Manchester

IBM to £15K
Insurance/Financial W. Sussex

ICL to £12K
Pensions Surrey

IBM/ICL to £12K
On-Line Croydon

Software Engineers

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Finite Element/Graphic Display Home Counties

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Coral - Macoc Hants/Surrey - Essex - S. West

PDP/VAX/INTEL to £13K
Telecomm - ATE Surrey/London/Kent

PROCESS CONTROL/INDUSTRIAL AUTOMATION, to £13K
Real Time/Petro Chemical Industries Yorkshire

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CAD/CAM/ATE Home Counties

CAD/CAM to £12K
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01-734 1200

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(7840)

REDIFFUSION

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CBS APPOINTMENTS
1 Wootton Cawood (0924 221985) or 0222 804097 (Eves & Wimborne)
Ag. (2486)

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An alternating two shift system is worked between the hours of 07.30 Monday to 22.30 Friday. 14% Shift Allowance.

Application form from ASSISTANT COUNTY TREASURER (Computer) COMPUTER SECTION, COUNTY HALL, EXETER Tel: 77877, Ext. 2472 returnable by 24th March, 1983.

This position is open to applicants of either sex.

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Programmers c.£11,500

Experienced COBOL programmers are required to work on a variety of stimulating new applications. In addition to basic programming competence, IBM experience is preferred and exposure to on-line development using CICS is highly desirable. Experience of PL/I, in an ADABAS and/or DL/1 environment, together with knowledge of MVS are strong additional recommendations. Ref: G1111/2.

In addition to the basic salary, the successful candidates will enjoy an attractive range of fringe benefits, including:

- subsidised mortgage
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- overtime payments
- generous relocation expenses.

To apply, please send a CV or write or telephone for an application form, to SARAH KENNEDY, at the address below, quoting the appropriate reference. Applications are invited from either sex.

BIS Applied Systems Limited
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(2795)

Rochdale

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PROGRAMMER

AP/PL/01 030352-0231 (bar £1 minimum of each grade). Salary will be dependent upon experience.

The Authority operates a 2658 mainframe under a VME2000 operating system in new Municipal offices.

Applications are invited from experienced COBOL programmers; familiarity with VME would be an advantage but training will be given to suitable applicants.

APPLICATION FORMS available from the Personnel Officer, PO Box 88, Municipal Offices, Peter St, Rochdale, Lancs, OL1 1XG. Tel: 476111. Last date for applications 25th March, 1983. (2882)

IBM SYSTEM/38 RPG III

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Please ring RAY SLATTERY on 01-803 8618 for further information or write to him at Datasense Limited, Blue Line House, Elyes Estate, Angel Road, Edmonton, London N18 3BJ.

(2800)

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SPAN COMPUTER CONTRACTS
Contract Computer Contracts

IBM ASSIGNMENTS

DOS/VSE CICS VSAM COBOL
System 34 RPG 2
System 34 RPG 2
PL/I IMS DB/DC
IMS
MVS
Jackson Structured COBOL
8100 DPPX DPX
ADABAS/NATURAL COBOL
CICS TOTAL COBOL/ASSEMBLER

- Analyst Prog
- Analyst Prog
- Progs
- Progs
- Systems Progs
- Systems Progs
- Progs
- Systems Progs
- Progs
- Progs

DEC ASSIGNMENTS

PDP 11 RSTSE Basic
PDP 11 UNIX PASCAL ASSEMBLER
VAX VMS COBOL
VAX CORAL
PDP 11/44 RSX 11 CORAL

- All levels
- Software Engineer
- Progs
- Prog/Analyst
- All levels

TANDEM ASSIGNMENTS

TAL
Pathway/Networking
TANDEM

- Programmer Analysts
- Systems Designers
- Consultants

ICL ASSIGNMENTS

2900 VME/B IDMS
ME 29 IDMS

- All levels
- Progs/Analyst Progs

OTHER ASSIGNMENTS

WANG VS COBOL
ARBAT AIMS
Z80 ASSEMBLER/BASIC
UNIX and C
UNIVAC 1100 COBOL
HP 3000 COBOL
Data General AOS COBOL
Banking Systems
Electronic Engineer/Assembler

- Progs
- Analyst Prog
- Programmers
- Programmers
- Analyst Progs
- Programmers
- Analysts
- Progs

FOR DETAILS OF THESE CONTRACTS
PLEASE TELEPHONE 01-734 7394

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COMPUTER
CONTRACTS

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UCI

Challenging Opportunities

CONSULTANCY

MANAGEMENT CONSULTANTS

LONDON

We have been retained by four internationally famous Management Consultancies to find those special people who can bring a level of competence to often complex business and computer problems. The ideal candidate should have a degree, be under 36 and have verbal and written communicative skills and be prepared for some travel home and abroad. He (or she) should also have a background of technical competence in one or more fields such as Database Design, Telecommunications, Banking, Stockbroking, Insurance or Business Applications. Distributed networking experience would also be an advantage. Salary negotiable to £24,000. REF: CW10/1

TECHNICAL INNOVATION

TECHNICAL SUPPORT

HERTS

A very successful manufacturer requires well-qualified software specialists with Assembler experience to join their Technical Support Group. You should be capable of developing benchmark tests and improving performance by detailed tuning of these systems. Sizing and computer selection are other important requirements. REF: CW10/2

AUTOMATION SPECIALISTS

C. LONDON

A major systems house with over 15 years' experience in Industrial Automation are seeking several process control specialists with at least two years' Assembler plus some high-level language experience. A science or engineering degree is preferred and upon joining you will receive excellent training and technical mini/micro experience. REF: CW10/3

TELECOMMS CONSULTANTS

LONDON

Our clients have a top-rate reputation envied throughout the telecoms world. They require a number of specialists with experience from: Packet switching, message switching, banking, communications, international telex and networking, able to advise clients upon all aspects of CCITT standards and developments. REF: CW10/4

TECHNICAL PROGRAMMERS/MANAGERS

S. LONDON

An internationally-famous Computer Manufacturer is developing a range of micro-minis to be competitive with their major range. The successful candidate should have high-level language experience plus a systems design/software role in operating, computer or Data communications systems. They are also looking for two managers to control this development. REF: CW10/5

FREELANCE ASSIGNMENTS

Statistical applications in N. LONDON
FORTRAN on VAX/VMS
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Database programming in S. LONDON
COBOL T/P on DPS 7

Please ring Alan on 01-458 8535 for freelance details
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Ours is a stylish company which leads its field and seeks top quality Sales Executives who wish to develop a career towards Management in a highly professional environment.

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If you are:

- ★ Aged 25-32, well educated (preferably to degree level)
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... I would like to meet you. Our top performers have your kind of background, earn over £40,000 p.a. and have an exhilarating time doing it. Are you good enough to join the team? If so, convince me. Contact my secretary on 021-643 6361, or ring me

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(2837)

Best Sellers.

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£17,500 pa
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These are 2 key sales roles which offer you the opportunity to gain a winning edge in today's competitive world. Our Client is the UK's leading provider of Computer Systems to the Legal Profession. The products span both Bureau Services and in-house Systems ranging from Small units to Personal Computers. Applications vary from Accounting and Tax to Research to Word Processing. The ideal salesperson will be able to demonstrate a high level of computer literacy and enthusiasm for the product.

You will have a successful sales track record. It would be an advantage if you had previous involvement with firms of Solicitors and experience of Accounting and Word Processing Systems. However, sales ability and personal presentation will be the main criteria as comprehensive training will be given.

The Company offers a unique position in this market place and has a substantial marketing budget. Qualified individuals are invited to this successful and rapidly expanding user base. The Company now wish to recruit a further professional who is capable of realising the systems potential.

Your track record should demonstrate consistent performance in strategic sales of high value products within the computer industry.

Average earnings £30,000

Major Accounts Executive

Northern Region

From
£17,500 pa
guaranteedAverage
earnings
£30,000

Armed with the World's leading Computer Based Legal Products your salesperson will be the largest industrial and commercial organisations within the North of England.

The system's technical excellence and performance characteristics have resulted in a rapidly expanding user base. The Company now wish to recruit a further professional who is capable of realising the systems potential.

Your track record should demonstrate consistent performance in strategic sales of high value products within the computer industry.

Average earnings £30,000

A high level of selling experience is required. The Company's profit levels are in excess of £50,000 per annum. Please make consideration to this successful and rapidly expanding user base.

For further information please contact Clive Weddell on 081-826 8781 (24 hour answering service) or 021-449 6128 (evenings and weekends).

(2837)

SOUTH
James House, 45 James Street
London W1M 5HS
01-825 0871/489 5411

MIDLANDS & INTERNATIONAL
35-37 Great Charles Street
Oversway, Birmingham B3 3JY
021-428 3711

NORTH
International House, 24 Deansgate
Manchester M3 2ER
061-833 0427

BELGIUM
Avenue Louise 327
1020 Brussels
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1071 H.M. Amsterdam
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... New openings in Computer Security and MVS Systems Programming

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SYSTEM 34 PROFESSIONALS THE BEST OPENINGS IN SYSTEM 38 YOU'LL SEE IN '83

- * Wilkins Computer Systems Ltd are specialists in the development of commercial applications software for users of IBM-System 34 and 38.
- * They are a structured, prestigious, and highly successful organisation based in truly superb offices in the City.
- * The working conditions and career opportunities at Wilkins are excellent. Full training is given in which ever direction needed for you to develop your skills to their full potential.
- * For these positions you will need at least 2 years relevant experience within the DP industry backed up by a good knowledge of RPG II or III, solid analysis skills and a flair for Leadership.
- * You will be dealing with users of limited technical experience who will need assistance from definition of requirements through to implementation, and thus you must have the ability to communicate with clients at all levels.

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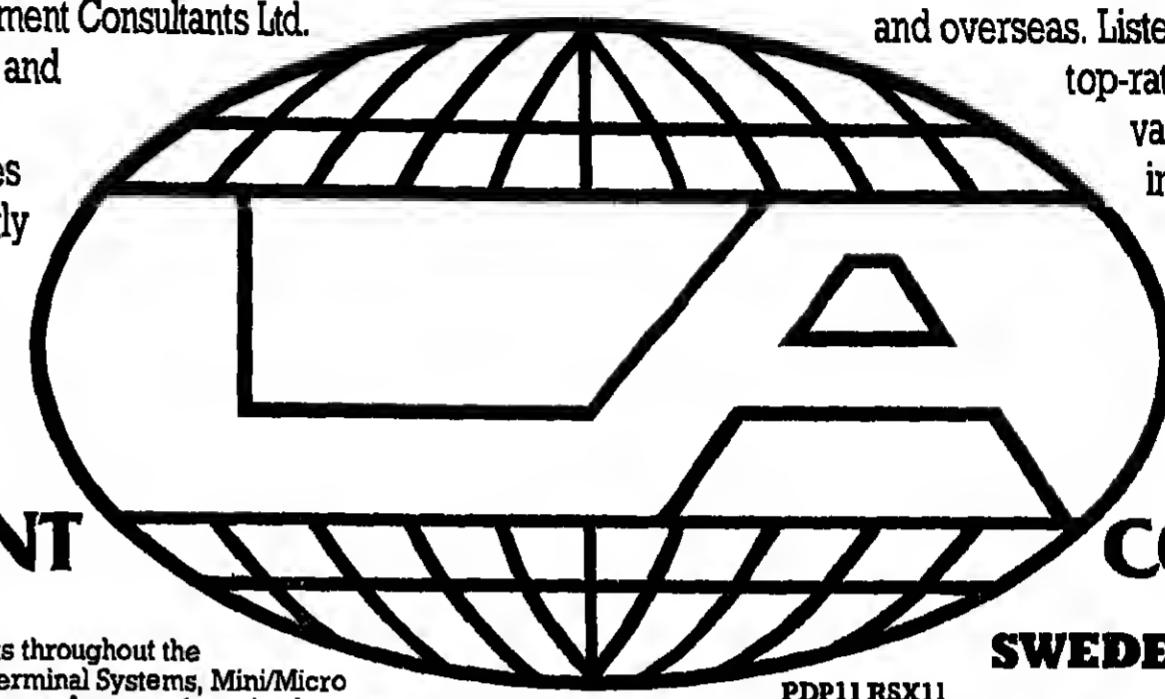
If you are used to dealing with a "blue chip" client base such as Wilkins have and you consider yourself to have the potential to succeed within this challenging environment, telephone Nick Clements (who has similar experience to yourself) on 01-734 7394 during working hours or on 01-546 7813 during the evening or at weekends.

ARE YOU A PROFESSIONAL? GO INTERNATIONAL WITH LA

LA International Management Consultants Ltd.

are specialists in Contract and Permanent recruitment.

Associated with companies on 3 continents, we urgently require ambitious professionals for vacancies in this country



and overseas. Listed below are a selection of top-rate permanent and contract vacancies for leading clients in the UK and overseas. For the cost of a phone call, you could have a rewarding new career.

PERMANENT SALES

Sales vacancies exist with clients throughout the U.K. in Data Communications, Terminal Systems, Mini/Micro Distributive and Mainframe Systems, from graduate intake to senior management level. Confidential interviews arranged.

SALES SUPPORT

NORTH WEST

DEC mini/micro software support. Sound knowledge of micro/minicomputer software + DEC/VAX distributive networks. Major international company. Good career prospects.

Ref: CW 201/DC

MIDLANDS

Hewlett Packard hardware software experience preferred but not essential. Pre post sales support role. Image Query COBOL

Ref: CW 202/DC

MANCHESTER

Micro operating systems software experience essential. CP/M Unix or equivalent also commercial micro software vacancies with the same progressive company. Exciting challenging positions. COBOL BASIC.

Ref: CW 203/DC

SOFTWARE

CHESTER, LANCASHIRE, MERSEYSIDE, SCOTLAND, YORKSHIRE, MIDLANDS

IBM 4341 Program and Systems Designers £7,500 to £10,500 Systems Programmers MVS/OS/VSI. Proven track record on IBM hardware using PLI/COBOL. New development online systems with CICS. Assembler plus systems generation experience essential for the systems programmers.

Ref: CW 102/DC

IBM 4341 Programmers and Analysts

£7,500 to £12,000 + mortgage subsidy DOS/VSE COBOL/PLI 3 clients require experienced COBOL and PLI for commercial financial and manufacturing online systems with CICS/DL.

Ref: CW 103/DC

Burroughs B1900 Programmer

£7,000 COBOL 2 years experience on any hardware. Educated preferably to Degree level.

Ref: CW 104/DC

Honeywell DPS8 Programmer

£7,500 ID/TDS COBOL. 2 years experience on Honeywell hardware for new development. Commercial/financial online systems. Exciting prospects.

Ref: CW 105/DC

Numerous other vacancies in the above areas from operations to senior management.

KENT, WILTSHIRE, GLOUCESTER, HAMPSHIRE, AVON

DEC PDP11/70 Senior Programmer £10,000 RSTS/E Basic. Our client an International Chemical Company based in Kent are seeking candidates with a minimum of 3 years experience including the design and implementation of Sales, Accounts and Stock Control Systems. Excellent career progression, relocation, plus overseas travel.

Ref: CW 106/DC

ICL 2900 VME/DME Programmers, Analysts, System Programmers to £12,500 + mortgage subsidy

Commercial financial and banking applications considered minimum 2 years experience online new development systems.

Ref: CW 107/DC

IBM 4341/3033 Programmers/Analysts, Project Leaders, Assembler, Systems Programmers to £14,000 + mortgage assistance.

Ref: CW 108/DC

MVS/OS/VSI minimum 2 years experience essential. Commercial financial applications COBOL, MVS preferable for the Systems Programmers.

Ref: CW 109/DC

Prime Programmer to £7,500 Fortran/Basic 2 years experience. Major software house based in Bristol area. Varied applications but preferably experience on scientific projects.

Ref: CW 110/DC

IBM - ICL - DEC Programmers/Analysts £ negotiable on experience

Vacancies throughout the South of England for experienced programmers and analysts.

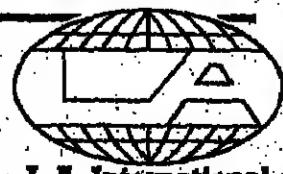
OVERSEAS

Phone for details of permanent vacancies OVERSEAS

LA International Management Consultants Ltd, Norwich Union House, Trinity Street, Hanley, Stoke-on-Trent ST1 5LJ.

0782 279099

After office hours contact Paul for
vacancies on 0782 659960.



LA International

ELECTRONIC MAIL

Our first anniversary!

Yes, it's been an exciting, successful and busy first year.

As we approach our first anniversary we are looking for others to join our young and dynamic team.

Telecom Gold has made a dramatic impact in the field of improved management communications through electronic mail, over the last 12 months. We now boast over 125 companies and some 1800 individual mail box holders using our MAIL service. Particularly exciting has been the recent enhancement of our services with its links now to other British Telecommunications services such as Telax, Telemesage and Radiopaging.

We believe that our computer timesharing based service offers the widest possible communications facilities to the manager and his secretary at their desks. Our achievements to date prove it!

Company benefits include pension scheme and Bupa.

If you have energy, enthusiasm and determination to succeed we want to hear from you.

Do you fit this profile?

* Able and want to show personal initiative.

* Can exhibit management and planning skills.

* Can display good communication and interpersonal skills.

* Can work comfortably in a very busy, small company environment.

SALES + MARKETING

SALES EXECUTIVES

C. £18-20K

+ Car

You must have
 * at least 3 years selling experience with a proven track record
 * negotiated business at a senior management level
 * some understanding of data communications and data processing generally
 Additionally we would like you to
 * have a timesharing background
 * be educated to degree level
 * age 25+

ACCOUNT MANAGERS

C. £16-18K

+ Car

You must
 * have had major/national accounts responsibility, related to the maintenance and growth of computer services or system installations
 * be able to negotiate with senior management
 Additionally we would like you to
 * have experience in managing Government accounts
 * age 28+

CUSTOMER SUPPORT EXECUTIVES C. £8-10K

You must

* have some experience in data processing/WP and office automation environment
 * be able to demonstrate, train and implement computer based services/systems
 Additionally we would like you to
 * have a timesharing customer support background
 * age 24+

DEVELOPMENT AND PRODUCT SUPPORT

SENIOR PRODUCT SUPPORT EXECUTIVE

C. £12-£14K

+ Car

(Systems Integration)
 An individual of Team Leader status is required in this key role to focus on the identification of product opportunities, market requirements and potential market size.

Additional tasks will involve close liaison with the development and sales teams in the introduction of new products and the supervision of a small team of specialist product support staff. Background experience should include a detailed knowledge of Office Automation with a strong communications bias, possibly in a consultancy role.

PRODUCT SUPPORT EXECUTIVES

C. £10-12K

(Development and System Support)
 Analyst/Programmers are required to assist in the specification, implementation and support of a series of communications based projects. A sound basis in programming in such an environment is required and experience in link protocols such as X25, HDLC, etc. would be an advantage. A background in Prime hardware is also desirable, but not essential.

PRODUCT SUPPORT EXECUTIVES

C. £10-£12K

(Information Services)
 Analyst/Programmers are required with business analysis experience to undertake the analysis, design, programming and implementation of database applications within our wide and varied existing account base. Individuals should ideally have a minimum of 2 years experience in a software house or timesharing environment, additionally knowledge of Fortran and Prime hardware would be an advantage.

INTERESTED?

Please write or phone The Personnel Manager, Telecom Gold Ltd.
 42 Wootton Street, London SE1 3QD

01-403 6777

TELECOM GOLD

The Goldsmith Assignments

TO: ALL COMPUTER PROFESSIONALS
 FROM: GOLDSMITH COMPUTING

A/Progs ME 29 TME/TP IDMS - Newcastle
 Technicians VME/B - North West
 A/Progs VME/B IDMS - Newcastle
 Progs VME/B - Yorkshire
 Progs NCR 8000 Neat 3 - Yorkshire
 A/Progs HP 3000 - North West

Contact Peter Lynch or Sue Kelly on 0422 248521

Progs IDMS VME/B - Bedfordshire
 Designer IBM Communications Exp.,
 MVS - South Coast
 Analyst Insurance/Re-Insurance
 Exp. - South East

Contact Mandy Lock on 01-828 5356

Goldsmit Computing Ltd

CSA
 Computing
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COMPUTER
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 PROFESSIONALS

HONEYWELL L 64 PROGRAMMERS

£7-£11,000

Two installations based at both extremes of Greater London seek Programmers with a commercial background, varying from six months' to four years' Honeywell Cobol programming experience. Knowledge of TDS on-line programming techniques will be an advantage for the senior positions. A general appreciation of Cobol is desired for the junior positions. Career progression through to Analysts is assured by both companies dependent on aptitude and desirability.

HONEYWELL L 66 PROGRAMMERS

to £11,000

Expanding commercial organisation based in London is seeking Programmers with a minimum of 18 months' Honeywell Cobol experience. Applicants possessing knowledge of either IDS I/II database systems and/or TDS/DMV TP systems would be of particular interest, however, other Honeywell experience will be considered. Perks are varied and include company product discount.

SALES EXECUTIVE MANAGER DESIGNATE BANKING/INSURANCE

City Base

£25k + Car

Our client, the European Headquarters of one of the largest computing services organisations in the world, is seeking to recruit a Senior Salesman for its city district office. The position should lead to sales management within a year. Totally committed to the development of leading edge, on-line systems, the company provides computing services for city institutions (e.g. banks, insurance companies, stock brokers, finance houses etc.) which are among the most advanced available in the world.

The company will also consider existing sales managers, with relevant experience, who are willing to perform an active selling role while planning and developing their own team.

This represents one of those rare opportunities to join a company which provides a genuine career opportunity for a Salesman. Benefits include free BUPA membership, and life assurance.

For further details phone Kevin McCourt or write enclosing full C.V. Interviews will be held in Reading or Central London.

SALES EXECUTIVES AND SALES MANAGERS

Michael Linford Associates wish to hear from Sales Executives and Sales Managers whose track record to date has demonstrated superior ability.

You may have just completed your initial 'Sales Apprenticeship', alternatively, you may be a Senior Sales Executive or a Sales Manager/Director.

We are an established consultancy who specialise in the search and selection of sales and marketing executives for the computer industry with target earnings from £16-50,000 P.A. plus.

Perhaps your current appointment is fulfilling your career needs, but nevertheless, you are interested in future opportunities, alternatively, you may be actively seeking a new appointment now.

You may be looking for:
 ★ A more sophisticated product
 ★ A totally professional peer group
 ★ More authoritative role
 Or more likely, a combination of all these factors, than perhaps the type you spoke to us. Bear in mind, the best position for you may never be advertised.

In the first instance telephone Steven Baker on 01-370 2012/2013. Or send a brief CV for his attention to the address below. Any approach will be treated in the strictest confidence.

MLA
 Michael Linford
 Associates Ltd.

Executive Search Consultants
 139 Gloucester Road, London SW7. Telephone: 01-370 2012/2013.

Fresser Philips Computer Services

Regent House
 235 Regent Street
 London W1R 8JU
 Telephone: 01-408 1611/2

PRIME JNR. PROGRAMMER £7,000

Company situated in Central London is looking to recruit a Junior Programmer with 12-18 months' experience, preferably gained within a Primes background. Candidates should ideally possess a working knowledge of Fortran programming techniques, however training is possible where necessary. Perks include a very pleasant working environment and subsidised restaurant.

ICL SENIOR PROGRAMMER £10,500

Progressive company based in N. London requires a Senior Programmer with a minimum of four years' experience. Candidates should be familiar with MTS on-line programming techniques together with a sound appreciation of DMS/GI Cobol programming. Small project leadership is desirable, however not essential, as is some use of the utmost importance in this friendly environment. Perks are varied and include five weeks' holidays and company season ticket loan.

ICL ANALYST/PROGS £9,500

This installation based on the stockbroker belt is looking to enhance its Systems and Programming capability by recruiting VME Programmers with 18 months' experience to Analyst Programmers with four years' commercial experience. Applicants should possess either an understanding of IDMS/TPMS for the programming positions or a minimum of nine months' systems experience for the Analyst/Programmer position. Career prospects are excellent and include potential project leadership for the right applicants.



REGIONAL HEALTH AUTHORITY

Located in Winchester

Regional Systems Development Accountant

Salary up to approximately £12,000 p.a.
 (£12,600 from 1.4.83)

This post arises due to the promotion of the present post holder.

The Authority is responsible, mainly through its constituent health care trusts, for the provision of comprehensive health care throughout Dorset, Hampshire, Wiltshire and the Isle of Wight.

The Authority controls a revenue allocation of over £415 million and a capital investment programme in excess of £45 million per annum, and is both dynamic and forward looking.

This post offers a considerable challenge and career potential to young qualified Accountants (preferably graduates) with a few years' relevant post qualification experience, preferably but not necessarily in the Public Sector.

Potential applicants wishing to have an informal discussion should contact T. R. Layzell (Regional Treasurer) on Winchester 836511 EXT 398.

Application forms, job descriptions and other relevant information may be obtained from the Regional Headquarters Personnel Officer, Highcross, Romsey Road, Winchester, Hants, SO22 8DH. Telephone Winchester 836511 EXT 471.

Closing date for receipt of applications, 28th March.

(2268)

Nene College Northampton

Computer Services

Computer Officer (Programmer or Programmer/Analyst) £24,014-£27,545 p.a.) — Two posts

Under a three-year development programme the College is installing a new Digital VAX 11/780 system with an extensive network of terminals. Ideally educated to degree level, will be expected to make a direct contribution to one or more specific areas, such as graphics, scientific or business applications, use of microcomputers. A working knowledge of more than one previous experience will be an advantage, and relevant

For application form and further details contact: The Deputy Senior Administrative Officer, Nene College, Moulton Park,

Closing date for applications: 31st March 1983

COMPUTER PERSONNEL — SAUDI ARABIA

We require the following grades of Personnel to be employed by our associated Saudi Arabian company engaged on computer operations for Aramco:

SENIOR CONSULTANTS

Area £30,000 tax free plus overtime. In-depth knowledge and experience of electronic data processing consisting of at least 10 years in Scientific or Commercial Applications. Duties may include Project Methodology, Structured Design Techniques or Database Design.

SYSTEMS ANALYSTS
Area £25,000 tax free plus overtime. Required as Team Leaders for Application Development. Must have at least eight years' Electronic Data Processing experience in Scientific or Commercial Applications.ANALYST PROGRAMMERS
Area £20,000 tax free plus overtime. Candidates should have at least 5 years of Electronic Data Processing experience. Should be capable of writing programme specifications and working closely with other departments.

For all posts knowledge and experience of PL/I-TSO-SPP is essential; JCL-IMS (DB or DC) Applications Development an advantage; Mark IV and COBOL if possible.

We offer annually renewable bachelor status contracts, free accommodation, medical facilities, transport and 16 days' U.K. leave every four months.

Please write or telephone for one of our application forms stating which position you are applying for.

INTERVIEWS will be arranged with ourselves or an Aramco representative with a view to starting work in Saudi Arabia in May 1983.

SURVEY AND DEVELOPMENT SERVICES
1 ATOLL PLACE
EDINBURGH EH3 8HP
TELEPHONE: 031-228 1446

LLYFRGELL GENEDLAETHOL CYMRU THE NATIONAL LIBRARY OF WALES AUTOMATION PROJECT TECHNICAL OFFICER

The Library intends to purchase an integrated on-line library system that will replace the present manual procedures of a public enquiry service. The project involves managing computer implementations at a technical level, to include a small team established to direct automation within the Department of Printed Books.

The project is being conducted according to the procedures of the Central Computer and Telecommunications Agency and the successful candidate will be required to demonstrate a combination of computer and management expertise that will add to the existing resources of the staff. The Library requires a person who can offer some of the following:

- experience of liaison and negotiation between computing equipment and suppliers;
- experience of some terminal based data processing systems;
- experience of large scale databases or information retrieval systems with extensive search facilities;
- experience of the technical evaluation of supplier's proposals;
- a broad general knowledge of current hardware and software techniques. Though not essential, a knowledge of Welsh would be desirable.

The post is envisaged, in the first instance, as covering the first two years of the project, although an extension of this period may be possible. The post will be based in Cardiff, but some of the work will be carried out at the Library's headquarters in Aberystwyth. Ref: 75.

Applications are requested immediately and it is hoped to fill the post as soon as possible after March 31, 1983. Further particulars are available from the Secretary, The National Library of Wales, Aberystwyth, Dyfed, SY22 5BL. Tel: 0286 281111 Ext. 214.

(2248)

FIELD SERVICE ENGINEERS £8K + +

A superb opportunity to join the leading manufacturer of prestressed mini-superstructures and systems. The company's Service Engineers should know software and gives excellent training in the use of software. Systems and Project management, etc. London and Home Counties. Ref: 75.

WORKSHOP ENGINEERS £9K + +

Minis, minicom, peripherals, fault finding and repair, production test, assembly, inspection. In some of the areas our client has identified needs for quality in-house training. Hands-on experience preferred but also opportunities to enhance electronics experience.

STORY PRESS — London-based Operating System Tech Support Field Engineers wanted — to 12K +. Details: Ring Mike 01-580 6441 (day) 01-384 2260 (evenings)

club executive (kingston) ltd 01-543 0441 (day) 01-541 1241 (evenings)

(2261)

COMPUTER SALES MANAGER/TECHNICIAN

Applications are invited from candidates with suitable technical qualifications and successful selling experience.

The candidate selected will, during the initial employment, be based at our Midlands Headquarters.

The candidate should be capable of contributing to the design and development of the product, thus gaining full practical knowledge as part of their role. The jobholder will be involved in marketing, establishing and maintaining a nationwide sales outlet network.

Salary, company pension, scheme and benefits are commensurate with company size. Full training, including details, qualifications, experience and enclosing a personal snapshot is essential.

The Personnel Manager, Tatung (UK) Ltd, Hospital Street

Bridgwater, Somerset, TA7 1BS. 0895 6800.

O TATUNG (U.K.) LTD. (2274)

DE HAVILLAND COLLEGE Elstree Way, Borehamwood, Herts. TRAINING ADVISER

Required for the micro systems centre at Borehamwood, a founder member of the Federation of Micro Systems Centres. A Training Adviser is required to head a team developing advisory services and training in micro computing systems for businesses.

Sales and marketing experience are important for this post to encourage the widespread use of micro computers throughout local industry.

A suitable applicant is required as soon as possible, initially on a one year contract. Salary according to experience and qualifications on the scale £11,869-£13,118 plus £270 fringe allowance.

Application forms and further details are available from the above address or telephone 01-953 6024.

(2264)

Royal County of BERKSHIRE

COMPUTER SYSTEMS TRAINING SUPERVISOR

Circa 25,000 p.a.

To work at the Information Technology Centre, recently established, central to training to provide training and work experience in micro computing and information technology skills to unemployed young people.

An additional training supervisor is now required to instruct on hardware elements of the micro systems. Some knowledge of computer systems and micro-processors is essential, together with an interest in working with school-leavers who may have additional qualifications. If necessary, training in instructional skills and the specific hardware of the centre will be provided.

Further details and application forms from the Chief Executive, Elstree Hall, Elstree, Herts, WD2 8XD. Tel: 01-963 3221. Closing date March 31, 1983. Ref: 75.

Royal County Council is an equal opportunity employer and all applicants will be considered solely on the basis of ability and disability.

(2270)

ANALYST/PROGRAMMER

SURREY

Due to a recent merger, this well known Surrey based firm require a capable Analyst/Programmer with two years' + ASSEMBLER experience, and some knowledge of COBOL/Systems Analysis, to take charge of their ASSEMBLER work, and develop their COBOL skills. They run an IBM 4341 under DOS/VSE with CICS, and will offer you the opportunity to improve your COBOL skills.

Ref: 75

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Watch for 'deadly sins' of job-hunting

Ivan Newman passes on some tips to those restless marketeers

IN CASE no-one has told you, we are in a recession – even in the high-tech computer business. The evidence of the squeeze on company profits is shown by the number of companies taking prudent measures such as cancelling new plants, freezing wage increases and so on. Is this, then, the best time to change jobs?

The answer to that needs careful thought. Why not analyse the reasons for wanting a change in the first place? Remember, 1983 is a time of recession. The world of computer sales and marketing is now very different from that of the heady days when company turnovers and profits were growing rapidly; the market was expanding more quickly than existing companies could cope and new ventures grew on the surplus demand.

In those days job opportunities were legion and followed a typical cyclic profile. Very often early experience and training were gained with the larger companies which could afford the unproductive overhead of graduate trainees.

These young marketing people sooner or later (although sometimes never) became productive and began to generate revenue. After some two to four years a number of things could happen:

Of the "deadly sins", first



"Can I suggest you glance through the job ads for a 'planned move'?"

days. For the marketing people, smaller jobs in large companies led to larger jobs in small companies.

Experience was at a premium. There was a fast growing demand and there seemed to be a collective belief that there was "enough" business to go round. Healthy margins and/or good volume sales were the norm.

The world of computer sales and marketing is now very different from that of the heady days when company turnovers and profits were growing rapidly; the market was expanding more quickly than existing companies could cope and new ventures grew on the surplus demand.

same Temptation: If successful in the marketplace there was often a belief that the recently-trained were really exceptional and that better remuneration, benefits and management opportunities were available elsewhere. The "c. £40,000 on-quota (replication)" ads were their staple reading each week.

Then came Dissatisfaction: If not so successful a degree of self-examination occurred which may well have culminated in a scanning of the sales-support ads on the basis of "I like computers but I'm obviously not suited to selling them".

Then came Resignation: Not the written type but just an inertia against doing anything.

Then Reasoned Move: For any number of reasons, but ideally well thought-out, responses to whatever personal aims needed satisfying. Included in this category could be a reasoned change within the current employer organisation. Perhaps the only change was a more positive personal attitude to the existing job.

Looking through the "people on the move" columns reveals that a good deal of job changing, or even hopping, took place in 1983.

1983 is different. Times are now tough for marketeers. The "deadly sins" look different in the new light. Now, for example, there is a slower market growth (obviously these new market sectors which are showing robust demand), but companies have been "designed to run on continuing high market growth".

Old perceptions are not always valid. Whereas, for example, a cut might have been offered as the final clincher on a deal (it is, now sometimes offered right from the start) – no so good reason.

Then comes the Reasoned Move: Most of the reasons for changing job, including the "deadly sins", are perfectly valid; what is needed is the right frame of mind to mould them into a positive campaign of action which will result in the right kind of move. That success breeds success is absolutely right, but what happens when successes are fewer and farther apart?

What do the "deadly sins" look like now? First comes Temptation: Relative success perhaps suffering a little in difficult times. As the fault cannot be "me" then it might be the products I sell, or the company image, or the price. So it is indeed tempting to investigate the "new and

different" and

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